First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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PUBLIC LIBRARY JUL 1931 DETROIT

Ayres Sees Moratorium On Debts as First Step Toward World Revival

Cleveland Economist Aided in Writing Dawes Plan; Hesitates to Set Date of Real Business Upturn

CLEVELAND, July 15.—The one-year moratorium on international debt payments brought about by President Hoover should be regarded as only a first step in dealing with world-wide business depression, declares Col. Leonard P. Ayres, vice-president of the Cleveland Trust Company, in the bank's business bulletin issued today.

The moratorium, this well-known business economist asserts, should lead to a series of international accords to grapple with the fundamental problem of the depression, which is that of the continued decline in the prices of commodities entering into international trade.

"The major steps in such a series," he says, "appear to include a moratorium, and then a scaling down of international debt payments, the granting of increased international long-term credits and the progressive lessening of the restrictions and barriers to international trade."

This statement of Col. Ayres acquires importance because of the fact that he was one of the outstanding economic experts chosen to advise the Dawes commission in the drawing up of the famous Dawes plan. Col. Ayres made important statistical studies in Germany previous to the drafting of the plan, and practically wrote many of the provisions it contained.

The Cleveland economic expert now points out that the moratorium already has been most effective in dispelling despondency and generating confidence, both here and abroad, but he adds that, while it would be unwise to underestimate the importance of a restoration of business confidence, it is well to remember that the moratorium does not constitute a remedy for the business difficulties of the world.

The colonel evidently does not care to risk any predictions on the return of prosperity, confining himself in this bulletin to several interesting business and statistical studies. One shows that the rapid

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GAIN IN RUBBER CONSUMPTION OVER JUNE LAST YEAR

New York, July 15.—Consumption of crude rubber by manufacturers in the United States for the month of June is estimated to be 37,916 long tons, showing practically no change, as compared with May, which is counter to the usual seasonal decrease of 5 per cent. experienced in previous years, according to statistics

(Continued on Page 10)

MARYLAND DEALERS DISCUSS PROBLEMS OF MERCHANDISING

Ocean City, Md., July 15.—The second annual convention of the Automobile Trade Association of Maryland, with 300 delegates, brought its session to a close here yesterday. The gathering was a representative one, several dealers coming from Delaware, District of Columbia, Virginia and the southern part of Pennsylvania.

E. Allan Sauerwein, legal counsel of the association, started the ball rolling by addressing the delegates on "Legal Pitfalls for the Automobile Dealer." Mr. Sauerwein vigorously attacked the general make-up of the business forms in use today among dealers, and declared that the average dealer contracts and conditional sales forms were filled with "loop holes," and were entirely inadequate to meet new conditions which have arisen in the trade.

K. A. Ridenour, straight-thinking sales executive of Dodge Brothers,

(Continued on Page 2)

Survey Points to July Output Of 200,000 in U. S. and Canada

First Half of Month Saw Production of 125,000 Units; Vacation Period May Cut Second Half

DETROIT, July 15.—Production of motor vehicles in the United States and Canada during the first half of July approximated 125,000 units. This fact was brought out by a survey conducted by Automotive Daily News, with only a few doubtful spots in the returns. This rate of output is only slightly below the level attained during the first half of June. It is certain, however, that production during the last half of July will taper off, not only because of the natural seasonal slackening of demand, but also because vacation periods will be observed in some plants.

In other factories, while there will be no actual closing, the number of employees on vacation will be largely increased this month. All this tends to cut down production, but the real factor is slackening demand and the determination of the factories not to produce beyond actual sales in sight.

The 125,000 units so far produced in June indicate that production for the entire month will run to about 200,000, which compares with 254,760 (N. A. C. C. estimate) for June and 275,721 in July, 1930. Automotive Daily News will, as usual, give its readers a close estimate of the month's production about August 1.

Production of 200,000 units in July would mean a seasonal falling off from June of 21 per cent., or about the same as the rate of decline in July, 1930, from the preceding month, and a drop of 27 per cent. from the 275,721 output in June, 1930. Unless the shut-downs and curtailments are more severe than it now appears they will be, 200,000 for July should be the minimum, with a good chance that the figure will exceed that total by sufficient margin to reduce the rate of decline from July, 1930, to 25 per cent. Only 206,000 vehicles would be necessary to do that.

The output in the first half of July of last year approximated 165,000, or 40,000 more than in the first two weeks of the current month,

(Continued on Page 3)

MIDDLE ATLANTIC NEW CAR SALES OFF SLIGHTLY IN JUNE

New York, July 15.—Retail sales of new passenger cars in three Middle Atlantic states from which registration returns have been received for June, and the District of Columbia, totaled 8,780, as against 9,791 in the preceding month, a seasonal falling off of only 10 per cent. The three states are Delaware, Maryland and West Virginia.

This June total compared with 9,943 in June, 1930, a decline from a year ago of only 11 per cent. For the first six months of this year retail sales of cars in these states and the District of Columbia, as measured by the actual registrations, amounted to 45,249, as against 54,811 in the corresponding period of 1930, a falling off of 17 per cent.

Delaware reported a seasonal decline of 20 per cent. in June from May and a drop of 29 per cent. from a year ago. The falling off in the first six months in that state was 30 per cent.

Maryland's June registrations were 5.8 per cent. below those of the preceding month and only 9 per cent. below those of June a year

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Ratio of High Priced Cars To Total in Use Greatest In N. Y. and Connecticut

NEW YORK, July 15.—Radio of low-priced passenger cars to all cars in operation in this country as of July 1, 1931, was greatest in the South and in the Middle West, according to a compilation by Automotive Daily News.

Cars ranging in price from $1,000, f. o. b., up, made the best showing in New England and the East, the compilation showed.

For the entire country, low-priced cars, that is those listing at under $1,000, as of July 1, accounted for 70 per cent of the entire registrations of both new and old cars. This figure was based on passenger car registrations as of January 1, 1931, with adjustments for each state to cover estimated registrations for the first six months of this year.

For the purposes of analysis, the states have been divided into two groups. The first group, consisting of twenty-six states, is made up of states in which the low priced group accounted for 74 per cent. or more of the total registrations of passenger cars. The other group, comprising twenty-two states, contains the states in which the cars listing at $1,000 or up account for 27 per cent.

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BORG-WARNER DIVISION EARNINGS GAIN 178%

Chicago, July 15.—Business volume of the Detroit Gear & Machine Company, division of Borg-Warner Corporation, for the six months just ended is slightly above the comparable period of last year and 178 per cent. more than the last six months of 1930. This was revealed today in an announcement by C. S. Davis, president of the parent organization.

The noticeable increase shown since the first of this year has been due to numerous automotive contracts for all types of transmissions, including free wheeling, that have been placed by large automobile manufacturers.

Late News Flashes

Medina, N. Y., July 15—Irving L'Hommedieu, orginator of the automobile license tag law, died here last night. He was 66 years old and had been ill for only about a week. As state senator in 1905 he introduced New York's and the nation's first law providing for licensing and identification of motor vehicles.

* * *

Akron, O., July 15.—The Seiberling Rubber Company reports a June profit of $141,176 after interest, but before depreciation and Federal taxes. This compares with a profit of $124,845 in May and $89,137 in April.

* * *

New York, July 15.—Iron Age in its current issue estimates steel operations at 32 per cent. for last week, as against 33 per cent. the week before. The publication says that some large orders are overhanging the market, but definite action awaits more favorable general conditions.

N. A. C. C. Show Committee Urged to Sponsor Salons

NEW YORK, July 15.—**The future of the annual Automobile Salons, which have been held in New York and Chicago, is now in the hands of the Show Committee of the National Automobile Chamber of Commerce and a decision will be forthcoming in a few days.**

The salons prior to this time have been promoted by Emil Lascaris and have never been sanctioned by the National Automobile Chamber of Commerce. There has been some dissatisfaction among the dealers in regard to expenditures that they have had to make. They feel that they could run the shows themselves to better advantage. They feel also that the salons have not been advertised as freely as they should have been and that crowds have not been commensurate with the potential drawing power of the exhibitions.

Some days ago the New York dealers interested in the movement filed an application to conduct the salon here, with the show committee of the N. A. C. C. This application will be acted upon within the next few days and in all probability the dealers will be given a sanction to conduct this exhibition of fine cars, special bodywork and de luxe accessories.

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MARYLAND DEALERS DISCUSS PROBLEMS OF MERCHANDISING

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in his address on "Training the Salesman for More Sales," expressed his belief for the need of thorough training in the theories of automobile selling, and their practical application to salesmanship and sales management.

"Automobile salesmen," said Mr. Ridenour, "must be made to understand that people are actually moved to buy automobiles by a very definite set of buying motives, and that there is a definite series of buying decisions to be made before an order can be logically expected or secured. These basic principles of salesmanship and sales management must be known to, and understood thoroughly by, the salesmen or group of salesmen who expect to survive the keen competition process which leads to the survival of the fittest today.

"These five motives are: Pride of ownership, gain and economy, protection and safety, comforts and convenience, and satisfaction in operation.

"The five buying motives are each complemented by a buying decision, as follows: The need, the thing that meets the need, the source, the price, and the time.

"It is said that we are entering a permanent buyer's market. Under the highly competitive conditions of a buyer's market, six fundamental principles of sound sales management and salesmanship must be known and observed:

"1. Chance methods are never safe.

"2. Organized sales procedure and skillfully trained salesmen are a vital necessity.

"3. Sales manpower must be of the determined serious types who are engaged in a promising life profession.

"4. Definite results can be obtained only with definite plans and more modern and intensive salesmanship.

"5. The Buyer's privilege applies not only to the product, but to the sales management and to the men who sel it. Unless the sales organization measures up to competitive standard in actual sales ability, then the higher grade salesmanship and merchandising will get the business.

"6. Any product that has outstanding merit and appeal, backed by salesman or a force of salesmen without standing sales ability, has exceptional opportunity or sales acceptance.

"Automobile salesmen must be selected with a view to achieving a higher standard of permanence in the organization and the profession. Such selection will eliminate the terrific rate of turn-over among salesmen, which is in reality one of the reasons why young men have not been able to acquire highly trained salesmen who could earn enough money to continue in the profession. If the salesman's knowledge and ability are coached and developed to a high point of professional proficiency, you will need less salesmen, and will build larger and more permanent clienteles.

"In the final analysis, in the eyes of the public, your salesmanager and your salesmen are you. What they do—what they say—how they do it and how they say it—their manner, their appearance—their comparative sales ability—determine the public opinion of you and your place of business. Each unit of actual selling effort accomplished by your organization holds the possibilities of building or destroying indivxidual respect fr you and your merchandise.

"Train your salesmen if you expect to profit in the automobile business throughout the coming years against the forces of other industries who are daily challenging you with a supreme effort to outsell you through the sheer intensity of more modern merchandising with trained forces."

During the final day's business session, D. J. Brady, Eastern regional sales promotion manager for Chevrolet, pinch hitting for W. W. Packer, Eastern sales manager for that company at Buffalo, in his address on selling for profit, clearly brought out the five reasons for unprofitable used car handling by the dealer. Thomas W. Wilson of Baltimore submitted a resolution, which was adopted and forwarded to the National Automobile Chamber of Commerce for approval and action.

The resolution was as follows: "The economic condition of the automobile dealer body is serious, deplorable and at the same time unnecessary. We believe with Alvan Macauley that there is a sufficient volume of business available today for fairly satisfactory returns, provided this business is conducted on a sound basis.

"We further believe that because of the increased ratio of used car sales to new car sales, it is essential that the dealer, in order to show a profit on his operation, shall conduct his business in such a manner as to show a gross profit on his trading operations.

"It is earnestly requested that the members of the N. A. C. C. recognize this need, adopt the principle and constructively aid their distributors and dealers in putting this same principle into effective operation.

"It is our belief that resultant improvement in the dealer's financial situation will permit him to correct other evils; to improve his service operations; to improve his salesmen's earnings capacity; to do the constructive work that needs to be done and thereby eventually raise the standard of efficiency and effectiveness of the dealer body collectively."

The five essentials for efficient handling of used car business were set down as follows: Buy them right, recondition them promptly and properly, display them attractively, advertise them sufficiently and sell them at a profit. Many dealers today are buying used cars instead of selling new ones. A recent survey of the business of 1,000 dealers showed that an 84 per cent. loss came from cars in stock for more than ninety days.

James Lindsay told the convention how legislation helps the dealer. He enumerated the amendments and enactments in motor vehicle laws which have benefited the dealer. Ample room for improvement remains, he said.

William Gow said that dealers today are in many cases giving away their service business. Repair work of all kinds should be done by the dealer, not farmed out. It is easy to sell service, said Mr. Gow, but the price must be right He suggested that dealers pay more attention to their shops and less to golf.

Leo Jordan asserted that dealers can lick this retail business if everybody from the boss down will sell one more car a week. he country, he said, belongs to the salesmen. At the present time he believes that executive boards of many companies are clipping the wings of the sales force. We need more salesmen and more sales action, more spirit to sell. People, he insisted, are hungry for good sales arguments. The cancer of the trade is the used car. The industry must master this. The used car business, Mr. Jordan said, is the tenth largest in the world. Owners of businesses should get out on the firing line and see what is there.

Joseph Little told the convention that prospects now are good, definitely better than they were last year. Any dealer can make money if he and his organization are aggressive. He stressed the fact that it is the manufacturers' duty not to make the dealers dissipate capital through bad policies. The allocation of capital is more important than its amount. Used cars freeze the dealer's capital, unless the units are turned over quickly. The biggest single loss among 4,000 dealers surveyed was found to be used cars in stock over ninety days.

William Burruss followed, and asserted that the weakness of present day conditions lies in that dealers are thinking after and not before. Thinking too much defensive and not enough offensive. Business men today need to fight every day and all day long for business.

George M. Graham was due to speak but was unavoidably absent, due to taking up new duties in the industry.

All the dealers departed for home full of new life and spirit and determined to fight against depression and propoganda conductive to it.

Classified Advertising

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Ayres Sees Moratorium Aiding Trade Revival

(Continued from Page 1)

depletion of Germany's gold reserves in June of this year developed a crisis which gave the President no time for full consultation with interested parties before proposing a debt moratorium. Germany, he says, under the complusion of selling abroad in order to get money with which to meet her payments abroad, sold at progressively lower prices, international commodity markets declined and nations seeking American goods shipped us gold. The moratorium, he suggests, gives the nations an opportunity to stop, look and reason.

"It gives them an opportunity to reflect on the simple economic principles that in the long run international payments, public and private, are made in goods and services; that the free flow of capital facilitates them; that tariff barriers hinder them, and that abnormal payments, like those arising from war loans and reparations, complicate them."

The moratorium is in reality an indirect resumption of international lending, he explains. Each of the creditor nations involved offers to lend to its debtors for a period of one year the amounts of interest and principal that would normally be paid over in that time.

Another statistical study indicates that a new building shortage is in the making. When the depression of 1921 came into being there existed a great accumulated shortage of building construction which became a factor in the revival. When the present depression came, no such shortage existed.

"It now seems probable that when this depression has run its course a recovery of business will bring a restoration of building to its normal activity," says Col. Ayres, "and it does not seem likely that important increases in building will come first and be effective in helping create business recovery."

A study of the earnings and dividends of the United States Steel Corporation shows that the management of the steel corporation faces difficult problems, much the same as those that confront nearly every citizen, whether to go forward in full faith that prosperity will return or whether it is wiser to restrict expenditures to such a point that they may be covered by current earnings.

Present conditions, this Cleveland banker believes, "clearly indicate" that some further extension of dull times is in prospect for the iron and steel industry. Operations are down to about 33 per cent. of capacity, the usually dull weeks of July and August lie ahead, important automobile plants are planning to shut down for vacations or inventory taking and railroad buying still is greatly restricted. There has been some firming up of steel prices and sentiment is distinctly hopeful. Yet actual business is not improving.

Conditions in the iron and steel industry, it is ponted out, are similar to those prevailing in the other heavy industries, and in many dissimilar lines of business as well.

A new study by the Cleveland Trust Company shows American tourist travel abroad has declined to the levels of ten years ago. So far travel abroad has showed no tendency to turn upward again.

SPARKS from DETROIT

Ford Rides a Plymouth

* * *

Campbell-Ewald Takes G. M. T. C. Account

* * *

Curbing the Reckless

Chris Sinsabaugh—Detroit Editor

HENRY FORD knew about the new Plymouth long before the wise ones in the neighborhood of East Grand Boulevard, Detroit. Not only that, but he had actually ridden in one and was presented with the third new Plymouth to come off the assembly line, given him by none other than Walter P. Chrysler, that is, if you believe the story that is going around, one which seems to "stand up," even if it does come by "grapevine" telegraph, though the two principals are not saying anything. From what I have heard from apparently authortative sources, I believe it to be true.

As it came to me, Mr. Chrysler slipped into town from New York without notifying the plant and called up Mr. Ford at Dearborn, which resulted in an invitation to run out River Rouge way and talk shop with Henry and Edsel. These three big figures in the automobile industry are said to have had a very pleasant morning, with the Fords taking the "friendly enemy" through the laboratory and other forbidden territory and showing him what was going on. Nothing was kept from Chrysler, it is said, and in the way of reciprocity, when the inspection of the plants was completed, Chrysler led his hosts to the office window and said: "I have something out at the curb I want to show you." It was a new Plymouth.

Then, as the story goes, the three hopped into the car and for a couple of hours enjoyed a comfortable drive. It is said both the Fords appeared greatly interested in floating power. They drove the car themselves and it was a hard party to break up. Finally Walter P. had to leave and as he was going he presented the Plymouth to the Fords, coming back to Detroit in a taxi himself.

* * *

THAT'S the way I heard it. Those who know the three men say it doesn't sound unreasonable; that, after all, while they are business rivals, that's as far as it goes. Personally they are friends and Chrysler is broadminded enough to realize that this gracious gesture might just as well be made, for the Fords would have gotten the information from other sources. Walter P. does not stick his head in the sand like the well-known ostrich.

* * *

CAMPBELL-EWALD have taken over the advertising account of General Motors Trucks, and the first story to "break" under the new set-up is the announcement that the United States Army has purchased eighteen General Motors trucks to be used as prime mover for the anti-aircraft artillery.

These trucks are designed to haul a fifteen-ton cargo, besides carrying a military load of eight tons. They are built to government specifications, and four are equipped with power winches. All have four power-driven rear wheels of the dual type to afford maximum traction. Power is transmitted to the two rear axles through a full floating worm drive with inter-axle differential. Westinghouse air brakes operate on all six wheels, and are applied through a conventional type front pedal. The hand brake is of the propeller shaft, two-shoe type, mounted on the rear end of the transmission.

Motive power is G. M. T. engine of 175 horse power at 2,100 r. p. m. and with a piston displacement of 707 cubic inches. Torque is 540 foot pounds, or seventy more than called for in the specifications. Twelve forward speeds and three reverse provide a wide range for operating over difficult terrain, and permit speeds ranging from two to forty miles an hour.

* * *

IN the war the city of Detroit is waging on the reckless driver, one of the effective weapons is to be a re-examination following an accident where any negligence is revealed. As many as thirty or forty drivers a day will be grilled in the crusade and those who are thus involved will have to prove their right to retain operators' licenses.

While this re-examination is not a part of the state code, the traffic court finds it most effective in weeding out the incompetents. So far as known, there is no other city in the country which uses this method of eliminating reckless drivers.

* * *

SO much interest is being displayed by Canadians in the opening of the Graham-Paige plant at Walkersville that the first Canadian-built Graham has been routed to all major cities in the Dominion and will be on display in the showrooms of distributors and dealers in the country that lies south of Detroit. Yes, south is right.

Insuring Wholesalers' Profits With Trucks

This report on economical truck operation in the wholesale field was prepared by the General Motors Truck Company, Pontiac, Mich., and is appearing in serial form in Automotive Daily News. Copies of this report in pamphlet form are now available at all General Motors Truck Company dealer and distributorships.

THE wholesaler has been told over and over again, in recent years, that his basic need is one of lowering costs and eliminating losses throughout the whole of his business operation. He has been advised to drop unprofitable accounts, to eliminate slow-moving, unprofitable items from stock, to reduce the warehouse expense by shortcuts to less costly handling, and to cut other expenses to the bone.

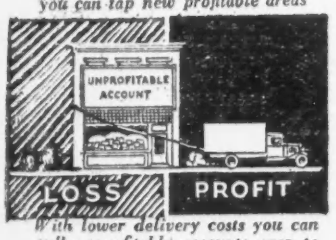
All of this is sound advice within certain broad limits. Just as it is sometimes sound operating practice to eliminate one or more trucks from the wholesaler's fleet with a view to truck operating savings, just so it is sometimes the best policy to curtail and limit many of he present activities of the wholesale house.

The average wholesaler, however, is far more interested in building his business and increasing his profits by sound expansion than he is in simply curtailing expense. Rather than refuse to serve unprofitable accounts, he would like to build them into profitable accounts. Rather than limit his trading area, he would like to extend it profitably. Rather than drop a great many items from stock for which there is occasional demand, he would like to add new, profitable items and increase his margin on all his present items. And rather than sell useful truck equipment in which he has money invested, he would prefer to find new, profitable uses for it.

INCREASING PROFITS WITH TRUCKS

Lower delivery costs provide the quickest way to increased profits

When delivery costs are lowered you can tap new profitable areas



With lower delivery costs you can pull unprofitable accounts over to the paying side

When delivery costs are lowered, both old and new items are lifted to a higher margin of profit

Four Ways to Increase Profits

The wholesaler who has placed his present truck operation is sound economical basis through better use of truck time, is in position to take a number of these profitable forward steps. For it is through the medium of his transportation that he has perhaps the greatest possibility for increasing his profits on each order he delivers and on each item he carries. But not until his present truck operation is sound and economical, can he make such forward steps with assurance of profit.

With his present trucks operating economically, the wholesaler has four ways open to him for increasing his profits by better methods of truck operation:

1. He can plan his deliveries to increase the profit on each order delivered.
2. He can plan sales and deliveries to convert unprofitable accounts into profitable ones.
3. He can make his savings in truck operation the basis for serving a larger area.
4. He can use his trucks to increase his margin on both old and new items in his line.

How each of these steps can be accomplished is shown in the following pages:

The amount of profit a truck produces is directly in proportion to the amount of work it accomplishes. Or, in other words:

The more orders each truck delivers within a given mileage, the less will be the cost for each order delivered.

Planning More Profitable Loads

When a truck is sent out with less than a full capacity load, the wholesaler does not get a maximum profit from the trip. It is not always possible, of course, to handle full loads on every trip. But the fact remains that many of the underload deliveries which leave the average warehouse day after day can be easily eliminated.

Underload deliveries, for the most part, arise from one of two sources:

Poorly planned routing.

Demands for special deliveries.

Reducing losses from each of these sources depends largely on the individual whose task it is to assign orders for delivery. In many wholesale establishments, for example, trucks are assigned to zones—all orders in a given zone being delivered by one truck. It is well to set up such zones as a general guide, but they should never be fixed. They should be subject to change just as often as the limits of any given zone do not provide a full load for the truck assigned to it. The dispatcher or shipping clerk should check each day's orders carefully, especially on off days or in dull seasons, with a view to combining zones, or parts of zones, to give each truck a full load. Similarly, the dispatcher or shipping clerk must constantly be on the alert to reduce the cost of special deliveries. His aim should be, by combining specials into one trip and by planning their handling for regular delivery, to keep customers satisfied at the lowest possible cost to the wholesaler.

Overloads Do Not Pay

Costly as are underloads, it is false economy to overload a truck. The facts about overloading are clear and unmistakable. Every truck will stand up and run under a greater load than its rated capacity, because every truck is built with a "factor of safety." But that factor of safety is the owner's insurance against damage from extra strains and jolts which are likely to be encountered by any truck at any time. Those jolts, under certain conditions, may multiply the strain on any given part by five to eight times the strain imposed by the weight of the load itself. The operator who overloads consistently or even occasionally, therefore, is simply making invalid his insurance against costly breakage of parts and damage to the truck.

The dispatcher or shipping clerk in every wholesale establishment should be clearly impressed with the fact that his job is (1) to provide prompt, correct deliveries, and (2) to keep down the cost of making those deliveries by planning profitable delivery loads.

(To Be Continued)

THE COST OF UNDERLOAD DELIVERIES

A radio distributor in a large Middle Western city operates a one-ton truck at 16 cents a mile. The full capacity of the truck is six cabinets.

If he delivers a capacity load over a twelve-mile route, the cost of delivering each cabinet will be only

32c

If he delivers only four sets, on the same trip, his cost for each set will increase to

48c

And if he delivers only two sets on the same route, his cost for each set will increase to

96c

KEEP TRUCKS FULLY LOADED

PLAN TO UTILIZE TRUCKS WHEN R. R. RATES INCREASE

Springfield, Mass., July 15.—Many manufacturing concerns in western Massachusetts are planning to utilize motor trucks for less than carload when freight rate schedules are revised upward December 3, in the opinion of local traffic experts.

The readjustment of the Eastern class railroad freight rate schedules has been ordered by the Interstate Commerce Commission.

A canvass of the opinions of traffic managers and purchasing agents of eight of the larger industrial concerns in this immediate vicinity brought forth predictions that the readjustment of rates will narrow the fields of distribution and shut off many of the distant markets of concerns shipping in relatively small quantities to distant markets where the increase in rates will upset the balance of competition; that considerable tonnage will be shifted from the railroads to motor trucks; that there will be a general expansion of freight consolidating and forwarding agencies to meet the changes and that in general the burden of shipping expense will be increased for those concerns shipping in less than carload lots and whose products fall within the first four freight class divisions.

Concerns in this last category face an increase of from 10 to 15 per cent. in freight rates. Traffic managers of the concerns in this city which face this increase were of two opinions. One group declared that the use of trucks and consolidation of freight to obtain carload size shipments would be necessary to meet the situation. The other held the opinion that it was merely a case of bearing the extra burden with as good grace as possible and increasing shipping cost allowances accordingly.

Traffic managers of the larger industrial concerns here explained that much of their freight is shipped in carload lots and that therefore they will not be greatly hampered by the new rates. It was freely predicted, however, that the multitude of smaller shippers who find it virtually impossible to make up carload lot shipments will be especially hard hit and in many cases actually cut off from distant markets.

TRANSPORTATION STUDY PLANNED IN ORANGES

Orange, N. J., July 15.—Another study of transportation facilities in the Oranges and Maplewood has been authorized by the transportation committee of the Chamber of Commerce and Civics, of which Adam G. Marshall is chairman. The previous study was made three years ago. Several of the recommendations were adopted.

Seven new lines were proposed, five of which have since been established by Public Service Coordinated Transport. One of the lines favored three years ago by the chamber officials, and which is expected to be again recommended, would operate from Maplewood through South Orange and thence to the Brick Church section of East Orange.

MIDDLE ATLANTIC NEW CAR SALES OFF SLIGHTLY IN JUNE

(Continued from Page 1)

ago. In the first half of this year, new car sales in this state were off 22 per cent., the rate of decline in June having been substantially reduced.

West Virginia reported a seasonal falling off of 16 per cent. in June and a drop from 1930 of 33 per cent. The half year decline in West Virginia was 34 per cent.

The District of Columbia reported a seasonal decline of 8 per cent., but was able to show a gain of 20 per cent. over June of last year, and in the six months' period set up an increase of 22 per cent. over the first half of 1930.

In the following tabulation, month-by-month registrations of new cars in these states for this year are compared with those of the corresponding period of 1930:

	1931	1930
DELAWARE		
January	291	441
February	340	533
March	564	869
April	690	987
May	706	911
June	565	798
Totals	3,156	4,539
MARYLAND		
January	1,699	2,293
February	2,074	2,892
March	3,259	4,377
April	3,738	5,076
May	3,624	4,361
June	3,412	3,747
Totals	17,716	22,751
WEST VIRGINIA		
January	924	1,493
February	1,021	1,653
March	1,464	2,602
April	2,674	4,210
May	2,542	4,239
June	2,120	3,162
Totals	10,745	17,359
DISTRICT OF COLUMBIA		
January	1,207	962
February	1,338	1,300
March	2,478	2,071
April	3,008	2,319
May	2,918	2,274
June	2,683	2,236
Totals	13,632	11,162

JUNE TRUCK SALES IN COOK COUNTY BELOW YEAR AGO

Chicago, July 15.—New truck registrations in Cook County for June were 45 per cent. less than for May this year and 37.3 per cent. behind June last year..

Chevrolet registered 75 as against 98 in June, last year, and 109 in May, 1931. Three-fourths of the listings were credited to Ford and Chevrolet.

International Harvester maintained its position in third place with 25, which compared with 46 in May, this year, and 43 in June, last year. Dodge was foudth with 16, as against 22 a year ago and 28 for May, this year.

Walker Vehicle and Autocar each scored gains over June, 1930, and May, this year. Each listed seven trucks. Walker had three in May and five in June, last year, and Autocar had 2 for May and one for last year.

The standing for June, this year, with May, 1931, and June, 1930, comparisons follows:

	June 1931	June 1930	May 1931
Ford	130	216	308
Chevrolet	75	98	109
International	25	43	46
Dodge	16	22	28
Diamond T.	13	48	16
Walker Vehicle	7	5	3
Autocar	7	1	2
G. M. C.	6	8	10
Mack	6	5	7
Federal	5	1	0
Available	4	6	2
Willys	3	0	0
Nelson Le Moon	2	3	7
Studebaker	2	0	5
Reo	1	5	2
Indiana	1	0	5
Stewart	1	0	0
Fargo	1	1	0

NEW DEALERSHIP FOR CHEVROLET IN W. PHILA.

Philadelphia, July 15.—J. W. Dennis and Lewis J. Tull, trading as Dennis & Tull, Inc., have opened a new Chevrolet dealership, occupying the entire building of two stories, at 4320 Woodland Ave., West Philadelphia. The floor space for each story is 60x90 feet. A safety lane has been installed and the partners claim that when all the general shop equipment is in place it will have the most complete station in its locality. A specialty is being made of high-pressure washing and lubrication, and twenty-four-hour service has been inaugurated.

The dealership is having considerable success in selling customers on the idea of having a meter, attached to the speedometer, on the dash, showing an indicator which points to every 500 miles run, indicating that it is time to have the oil changed and the car lubricated. There are six salesmen and four men in the service department. Although the dealership was only recently opened, fourteen deliveries of new cars have been made to customers and one day in the last week of June five cars were sold.

July Output Estimated At 200,000 Vehicle Units

(Continued from Page 1)

the rate of decline being just under 25 per cent. In view of the fact that advices from Detroit are to the effect that the seasonal falling off in July is not expected to be as great as that of last year, this may result in a better second half of July than is expected in some quarters.

It now appears fairly certain that production of motor vehicles in the United States and Canada this year will not reach the 3,000,000. If this proves true, 1931 will be the first year since 1922 in which the output has fallen below that mark. The 1922 total was 2,589,620, and observers of the industry in the New York financial circles are inclined to the belief that this 1922 figure will be exceeded by at least 300,000 units. That would mean a total for the year o ffrom 2,800,000 to 2,900,000 cars and trucks.

HOPKINS, ADVERTISING HEAD OF SCHRADER'S SONS FOR SEVEN YEARS, RESIGNS

New York, July 15.—S. D. Hopkins, advertising manager of A. Schrader's Son, Inc., Brooklyn, N. Y., for the past seven years, will resign about the end of July. His future plans are unknown at this time, but will be announced later in Automotive Daily News.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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THURSDAY, JULY 16, 1931

ADVERTISING AND BUSINESS HEADQUARTERS

Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
George M. Slocum, Manager Detroit Bureau, 427-8 Fisher Building, Detroit, Mich., phone Empire 3500; Willard R. Cotton, Western Manager, 333 North Michigan Ave., Chicago, Ill., phone Central 5936; Metz B. Hayes, New England Manager, Little Building, Boston, Mass.; Blanchard Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash. Address ALL advertising and business correspondence to 350 Hudson St., New York City.

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350 Hudson St., New York, N. Y. Telephone CA nal 6-1000
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Statistical Department (registrations and specifications), P. J. Robas, statistician; C. J. Alexander, sales analyst. Engineering Department, A. Benson Carleton, technical editor; J. Russell Walsh, engineering editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauersfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Empire 3500. Contributing editor, John C. Wetmore.

Buying Time

WHILE business continues in the doldrums of the, we hope, ebbing depression, naturally enough the minds of people are held in a web of wonderment and doubt. We wonder how much longer "it is going to last." We wonder whether we are going to hold our jobs. We discuss the possibility that business is actually straightening out on a permanently lower level than those of a few years past. We pop as much money as we can manage to save into savings.

But in all this welter of doubt and fear, one fact stands out unmistakable. If ever there has been in this generation a buyer's market, it exists now. Few of us have seen a time when a dollar spent will bring such a satisfactory return.

R. H. Macy, the great New York department store, has recently advertised as follows: "Many economists feel we have passed the bottom of this depression. During the last two weeks in June the price of raw silk advanced from $2.26 to $2.65 per pound; wool from 19½ cents to 21 cents per of the increase in other raw material prices, from foodstuffs pound; cotton from $8.90 to $10.05 a pound. These are typical to metals. We are business men, not prophets, but we can say that nothing is to be gained by waiting to buy merchandise that you want and need."

This is a piece of advice that we recommend to all prospective buyers and to merchants as a potent selling argument. Particularly is it apposite to conditions in the automotive field. There never has been a time in history when a dollar bought so much motor vehicle as it does today. Government figures prove that the useful life of an automobile today is over six years. This means that money spent for a new car is an investment in the best sense of the word.

People in this country have come to look upon the automobile industry as a sort of miracle worker. They seem to feel that, regardless of conditions, automobile manufacturers can and will continue to lower prices. Now the automobile manufacturers have worked an industrial marvel, but they are subject to certain laws exactly as any other class of industheir present levels, which, in many cases, they undoubtedly trial operators are. When prices of raw materials double will in due course, that increase has got to appear in the prices of motor vehicles. Operating economies, increases in efficiency and increased production are all very well, but they do not and cannot exempt even the cleverest manufacturer from the cost sheet.

Every automobile dealer can tell his customers in all honesty that by buying a car now they are actually making an investment of a sort that even a banker would recommend. Think that one over.

The Summer Cycle

DENY it as we may, it is nevertheless true that Americans generally look to the stock market as their barometer of business conditions. Taken by and large, it is not a bad barometer, but it does not always act with instant accuracy. Lately we have been watching a rally in stocks, based on President Hoover's moratorium suggestion, which has now become a fact.

It is only fair to call attention to the fact that while the debt holiday will undoubtedly benefit world conditions and contribute to the rehabilitation of business in the long run, present conditions do not encourage hope for a permanent advance of stocks. We are in the midst of the summer season, which is always a dull industrial period. We shall shortly begin to get reports on second quarter business and in many cases these are going to make depressing reading.

In the present circumstances we must look at business and the stock market with a certain breadth of vision. General conditions and the mental state of the country are better than they were a month ago. Hope feels some solid foundation under it, but we must not look for any spectacular rise either in business or stocks until after the summer cycle.

FOKKER'S NEW PLANT MAY LOCATE IN N. J.

Passaic, N. J., July 15.—Announcement of his plans for the formation of the International Fokker Corporation were made by Anthony H. G. Fokker, who resigned recently as director of engineering of General Aviation Corporation of Passaic and Teterboro. The new company will have its headquarters in the United States and its first factory will probably be located in New Jersey.

The Dutch Fokker Aircraft Company will be the nucleus of the new organization and plants will be constructed to supply planes to those countries not now served by a Fokker company or a company manufacturing planes under Fokker license.

Albert A. Gassner, former chief engineer of the Passaic and Teterboro plants of General Aviation, will serve in the same capacity for Mr. Fokker's new concern.

CRUDE OIL OUTPUT SHOWS SLIGHT GAIN

New York, July 15.—The American Petroleum Institute estimates that the daily average gross crude oil production in the United States for the week ended July 11, 1931, was 2,544,650 barrels, as compared with 2,482,500 barrels for the preceding week, an increase of 62,150 barrels. The daily average production east of California was 2,021,650 barrels, as compared with 1,975,900 barrels, an increase of 45,750 barrels.

Imports of petroleum (crude and refined oils) at the principal United States ports for the week ended July 11 totaled 1,202,000 barrels, a daily average of 171,714 barrels, compared with 1,984,000 barrels, a daily average of 283,429 barrels for the week ended July 4, and a daily average of 192,143 barrels for the four weeks ended July 11.

FORMED TO SELL FRENCH PATENTS IN THE U. S.

New Rochelle, N. Y., July 15.—The Houpert Ragot Engineering Company, Inc., has been formed here with offices at 170 Huguenot St. It specializes in the handling and selling of French patents in the United States.

For over twenty years H. J. Houpert was president and general manager of the Houpert Machine Company of Long Island City, manufacturer of pistons and automobile parts.

Until recently, L. A. Ragot was general sales manager for the Michelin Tire Company of Milltown, N. J.

MUIR HEADS TIRE DEPT. OF G. F. BLAKE, WORCESTER

Worcester, Mass., July 15.—Harvey A. J. Muir has been made manager of the George F. Blake, Inc., tire department, acording to C. C. Dodge, president and general manager of the Blake Company. This branch of the firm is distributor of Goodyear tires and Exide batteries. Mr. Muir has been associated with the tire industry in Worcester for the past ten years. For many years he was associated with Firestone and later with Miller tires.

COMING EVENTS

JULY

19—Nurburg-Ring, Rhineland, Germany. Automobile Club of Germany, grand prize race

SEPTEMBER

1- 3—Cleveland, O. Hotel Statler, Society of Automotive Engineers, twentieth annual aeronautical meeting in conjunction with National Air races.
8-17—Utrecht, Holland. Utrecht Fair, bus and truck show.
16-17—Atlantic City, N. J. National Petroleum Association, annual meeting, Hotel Traymore.
20-26—Springfield, Mass. Eastern States Exposition.
21-25—Boston, Mass. American Welding Society, meeting.
28-29—Atlantic City, N. J. National Association of Motor Bus Operators, fifth annual meeting, Hotel Ambassador.

26-Oct. 2—Atlantic City, N. J. American Electric Railway Association, annual meeting.

OCTOBER

1-11—Paris, France. International Automobile Salon.
2- 3—Houston, Tex. American Institute of Mining and Metallurgical Engineers, petroleum division meeting
12-16—Chicago, Ill. National Safety Council.
14-16—Pittsburgh, Pa. Society of Industrial Engineers, convention.
15-24—London, England. International Motor Exhibition, Olympia Hall.
22-28—Prague, Czecho-Slovakia. International Automobile Exposition.

Contemporary Comment

"GOOD morning; how are your brakes today?" If any one were to ask you that question you would smile sweetly and accuse them of being facetious or childish. But the question has a very serious aspect as far as motor cars in New York state, and the nation, are concerned.

Forty-one per cent. of all the accidents caused by defective mechanism were the result of badly adjusted brakes. A total of 1,176 motor accidents in New York state solely as a result of brakes, and brake bands, out of the 2,813 last year! These figures, presented by Charles A. Harnett, commissioner of motor vehicles, would be alarming were it not for the fact that the cause is not an incurable one. Brakes can and should be adjusted, repaired and replaced by men who are experts in that field.

A survey of the safety lane tests conducted in 127 cities in the United States last year shows that over 51 per cent. of the cars examined had defective brakes. Thirty per cent. of this total were in such bad condition that it would be impossible for them to make a safe stop in any emergency, on a downgrade or on a slippery street.

Some old-fashioned parsons used to have more success preaching about the dangers of hell fire than about the glories of the Golden City. Our modern psychology prevents us from using this "scare" type of preachment. We would rather point to the good which can be accomplished should the motoring citizens of this state spend more time and money on the first class condition and upkeep of the brakes on their cars. The old adage that "An ounce of prevention is worth a pound of cure" was never more true than when applied to the proper conditioning, particularly brakes, of automobiles.

"A word to the wise is sufficient."—**New York Automobile Club Review.**

* * *

SINCE Fiat is one of the biggest manufacturers of marine and stationary heavy-oil engines in Italy, it is not surprising that the firm should have turned its attention to Diesel-engined lorries. These are now being produced entirely in the model automobile factory at Turin, quite independently of the grandi motori factory in the same town, but the long experience acquired in marine construction has been put to use in producing the lorries. Two models are now in production, a six-cylinder machine designed for carrying six-ton useful loads and a four-cylinder model. The two are similar except in regard to the number of cylinders and dimensions.

The engine cylinders are in one casting, with integral crank case, the dimensions being 115x160 millimeters bore and stroke. Phosphorous cast-iron liners are fitted dry in the cylinders. A detachable head in one casting is held to the cylinder block by six stout studs for each cylinder. The crank shaft, which is of very big diameter and drilled for lightness, is, in the case of the six-cylinder engine, carried in seven plain bearings, and is fitted with a vibration damper. Forged I-section connecting rods are used with Invar aluminum pistons having four compression rings and one scraper. A compression ratio of 16 to 1 is made use of in this engine, and the air is drawn in through two very big filters on the ends of an H-shaped intake manifold.

The standard type of Bosch injector pump is used, this being on the right-hand side of the engine, and having injectors placed almost horizontally in the cylinder head. Timing is variably controlled by hand, and quantity of fuel injected is varied by both accelerator pedal and hand lever. At its normal speed of 1,600 revolutions per minute, the engine develops 80 horse power. It can, however, be run up to 1,900 revolutions per minute.—**Motor Transport (England).**

* * *

THE motorcycle is the one particular vehicle pre-eminently fitted for highway pursuit. To pursue another car of equal or greater speed capacity in the type of car usually purchased by municipalities for police use is ineffective if the criminal pursued has determined to really drive and get away.

It is recognized that both motorcycles and automobiles have proper places in Connecticut police programs, but cars should not be used for pursuit when this can be avoided. To so use them increases the danger to all traffic on the highway.

A uniformed policeman mounted on a motorcycle and riding up and down through traffic will secure more and better results than a half dozen policemen in cars. This does not mean that policemen ought never to ride in automobiles when on duty. There are times when a motorcycle is a dangerous vehicle for its rider. At those times care ought to be used by police, but whenever the weather and conditions are such that motorcycles can be used, that is the vehicle which is most effective.—**Robbins B. Stoeckel, Connecticut Motor Vehicle Commissioner.**

FORD OF CANADA ADDS CUSTOM BUILT AMBULANCE

Montreal, Que., July 15.—A custom-built ambulance has been added by the Ford Motor Company of Canada, Limited, to its extensive line of commercial vehicles. The body, finished inside in gleaming white lacquer, with chrome-plated fittings, is mounted on a special 131½-inch chassis.

EMPLOYMENT DECREASE IN PHILADELPHIA AREA

Philadelphia, July 15.—There has been a slight decrease in employment in this city since the local industries have settled down into summer quiet.

SOUND PICTURES USED TO PRESENT NEW CAR LINES

Chrysler Uses Method to Introduce New Plymouth To Dealers

SOUND motion pictures as a medium for the presentation of a sales talk and as an adjunct to the customary merchandizing methods employed by automobile manufacturers were utilized on a large scale in connection with the introduction of the new Plymouth car by the Chrysler Motor Corporation.

A three-reel subject entitled "The Fourth Milestone," produced by the Metropolitan Motion Picture Company with RCA Photophone sound recording equipment upon a number of exterior locations and at its studio in Detroit, already has been exhibited in many cities, and the Chrysler Corporation's plans are nearing completion for world-wide exhibition of the subject through the medium of RCA Photophone portable sound reproducing equipment.

At sales meetings held by the Chrysler Motor Corporation at its main office in Detroit and at the New York headquarters in the Chrysler Building, the picture recently was presented to members of the selling organization and to automobile editors of the leading trade journals and newspapers. The picture opens with an address by Walter P. Chrysler, who dwells at considerable length upon the merits of the new car as compared with his earlier efforts, and then goes into a detailed description of its construction, with a synchronized talk accompanying the scenes during the manufacture and assembly of the car and several interesting experiments to test the machine from various angles. In two of the scenes a brand new Plymouth is tipped over and rolled down a steep hill, the camera following its descent from top to bottom.

Morris Caplan, president of the Metropolitan Motion Picture Company of Detroit, supervised the production of "The Fourth Milestone," employing one of the latest models of the RCA Photophone news reel recording unit on location and in the studio.

DEALERS IN ERIE, PA., DISTRICT REPORTING INCREASED BUSINESS

Erie, Pa., July 15.—A survey of a dozen Ford, Chevrolet and Plymouth dealerships in northwestern Pennsylvania indicates the return of the buying public to market. Stocks of used cars among these dealers are at the lowest point in two years. Good late model used vehicles are moving off the sales floors within a week or so after they are taken in. New cars are being sold in greater volume, and, taken as a whole, there seems to be every indication of a satisfying volume of both new and used car business this fall and early winter.

Return of the larger industries in the district to normal operating schedules is responsible to a marked extent for the better business being experienced by local automobile dealers. The General Electric Company, which maintains one of the largest plants in this district, has stepped up production of metal refrigerator cabinets to 4,000 units a day and has also received important electric railway engine and equipment contracts, destined to keep the plant in full production well into 1932. In Meadville, Pa., a $5,000,000 rayon development is ready to start operations and will give steady employment to upward of 3,000 workers.

Aside from a few co-operative newspaper advertisements, the Ford and Chevrolet dealers in this district are doing little in the way of advertising this summer. Most of the business received, according to one large dealer, is coming in the way of customers coming unsolicited into the salesrooms.

Association Uses Ad Boosting Genuine Parts

AUTOMOBILE
MARYLAND
TRADE ASSOCIATION
Does the
AUTOMOBILE GRAVEYARD
supply YOUR repair parts ?
THE parts of the wrecks you see along the highways and byways find their way into your car and my car–if we don't look out. Hidden in the motor–axles, bearings, transmission–these phantom parts endanger your life and the car's life.
They came into your car with good intentions. But the way to the hospital is strewn with good intentions. Thousands of automobile owners are the unwitting support of a menacing practice that runs into thousands of dollars in this city alone.
The only way to protect yourself is to get a factory trained specialist to repair your make of car. YOUR DEALER IS THE MAN TO SEE. His force knows the peculiarities of your car to the last nut.
The parts he puts in your car are certified parts that belong in your car. They are of the right year–the right make–made for your car and belonging to your car only. A car is like a clock–an Elgin won't run with Hamilton parts.
Don't let the auto graveyard send its ghost parts into your car. Be sure–be safe–
SEE YOUR DEALER FOR REPAIRS and any service. It will cost you less in the long run.

THE AUTOMOBILE TRADE ASSOCIATION of Baltimore on July 9 published the above full-page announcement in the Baltimore, Md., press as the first of a series to increase the sale of genuine parts by automobile dealers

Meet the Sales Chiefs

CHARLES H. WONDRIES, manager of the commercial car division of the Studebaker Corporation and vice-president in charge of sales of the S. P. A. Truck Corporation, began life as an engineer. Born in Chicago, he attended the University of Chicago, where he played football and basketball. Later he specialized in civil and mechanical engineering at Leland Stanford University, where he was a member of the crew.

Mr. Wondries' first business connection was as engineer with the E. Clemens Horst Company of San Francisco, collaborating in the development of a hop-picking machine which cut picking costs in half and completely revolutionized the system of hand picking. Later he entered the services of the United States War Department, on assignment to the Sacramento River Survey.

After a year of this work he became city engineer of Colton, Cal., and then resident engineer of the California Highway Commission. In this capacity he assisted in the building of the first plank motor road through the arid sandhills extending between Holtville, Cal., and Yuma, Ariz., hitherto impassable for automobiles. In recent years this district has attained popularity as Hollywood's Sahara Desert, favored locale for movie desert scenes.

Returning to civilian life after serving through the war as an officer in the United States Engineering Corps, Wondries, in 1919, joined the White Truck distributing organization at Los Angeles as sales manager. While thus occupied he was responsible for negotiating one of the largest bus sales ever made until then, a combined order involving $683,000 to the Southern Pacific Railroad, the Pacific & Electric and the Los Angeles Railway Company. Under his leadership, the White Los Angeles organization grew to be the largest distributor of White vehicles in the country.

With this background as an unusually successful sales executive, Wondries joined the Studebaker Corporation July 1, 1925, as head of the commercial car division. When the S. P. A Truck Corporation was formed last year, he was appointed vice-president in charge of sales of the new organization. Mr. Wondries is married and has two children. His hobby is golf.

IN LARGER QUARTERS

Bergenfield, N. J., July 15.—Chambers Auto Sales Company, Ford dealer, has moved into larger quarters at Kipp Street and North Washington Avenue.

G. F. DALY HONORED AT OLDSMOBILE BANQUET

Nashville, Tenn., July 15.—A banquet was given recently at the Andrew Jackson Hotel in honor of George F. Daly, Southern regional manager for the Oldsmobile Corporation. The banquet, besides honoring Mr. Daly, was also to inform the Nashville Oldsmobile salesmen of the nation-wide sales contest being inaugurated by the Oldsmobile Corporation.

Jim Stone, toastmaster, opened the speeches by informing the salesmen that the contest was for the months of July and August. Mr. Hathcock, guest and dealer at Lebanon, promised co-operation with the Nashville organization. Fred Pilkerton, general manager of Cadillac and Oldsmobile in Nashville, expressed confidence in his salesmen.

FORD DEALER'S SPECIAL SERVICE OFFER ADDS 100 NEW PATRONS

A single special combination of shop operations offered to model A and model AA owners for the limited period between June 15 to July 3, by the Parkway Motors, Inc., Ford dealer, 59th Street and Florence Avenue, brought in approximately one hundred new customers.

The special, which covered eight operations, was advertised by postcard to a list of some 3,500 names, at the reduced rate of $6.50, material extra. A large percentage of owners who brought in their car and took advantage of this special offer, also ordered other work done, which made the plan work out very satisfactorily for the dealership.

The operations comprised the following: grind valves and clean carbon; clean and adjust spark plugs; clean and adjust breaker points; clean carburetor jets and adjust; adjust four-wheel brakes; wash car; lubricate chassis; water in the battery and air in the tires.

On July 9 the dealership held a parade of twenty Ford trucks in a variety of new types, led by a commercial caravan model equipped with a radio and loud speaker, while from a coupe were distributed among the children along the route and at stopping points a large number of toy balloons of different bright colors, bearing reference to the "26 Vital Qualities of the New Ford" and the advice "See Your Ford Dealer." Salesmen drivers also distributed Ford literature among the crowds along the route in West Philadelphia. The new trucks were loaned for the occasion by the Ford Motor Company Permanent Commercial Display, Broad Street and Lehigh Avenue. The parade commanded much interest, and it is believed that the prospect list was considerably swelled thereby.

Mr. Kurtz, the head of the concern, says service specials will be offered from time to time. There are seven salesmen attached to the dealership and five men in the mechanical shop and service station, which offers super service.

Plane Trips as Lure

Ford

30-Minute Airplane Ride

FREE

To Ford Purchasers!

Any person buying a New Ford Car of any type, from me and taking delivery of same before August 1st, will receive as my guest, a 30-minute Air Flight over New Haven, which includes your choice of several different trips.

FLIGHTS WILL TAKE PLACE AT THE HAMDEN AIRPORT

Ask for **A. L. MacDonald**

New Haven Motors, Inc.

1311 Chapel Street

Phone 7-5000 Home Phone 6-0863

NEW HAVEN MOTORS, INC., Ford dealership of the Connecticut city, chalked up a number of sales following insertion of the above advertisement, offering free airplane rides to Ford purchasers. The Hamden Airport is a private field on the outskirts of New Haven

EXPORTS IN JUNE FOR G. M. EXCEED PREVIOUS YEAR

New York, July 15. — For the seventh consecutive month, export sales of General Motors Corporation in June exceeded those of the corresponding month of the preceding year. Shipments by the company to dealers outside the United States last month totaled 11,398, as againts 9,845 in June, 1930, up 13.7 per cent.

There was a continuation of the seasonal decline, however, the June total comparing with 16,952 in May, a falling off of 32 per cent.

The June gain over a year ago was not as sharp as that which took place in May, when the upturn was just short of 50 per cent.

For the first six months of this year, sales of cars and trucks by the various manufacturing divisions of the corporation to dealers in the foreign markets amounted to 98,523, as compared with 84,642 in the corresponding period of last year, an increase of 16 per cent.

The high point in General Motors export business in the first half of this year came in April, when the foreign shipments reached 21,623, after having been at 20,253 in March. The first decline of this year came in May, with export sales were 16,952, and this downward trend continued in June at what appeared to be a normal seasonal rate.

Exports of the corporation declined sharply in the final six months of 1930, dropping to 5,239 in October, after which there developed an upturn that assumed sharp proportions in December. In the final month of 1930, export shipments were about three times what they were in the final month of 1929, and in every month since that time there has been a gain over the year before.

In January, the gain over 1930 was 5 per cent., in February, the upturn was 3.4 per cent., while in March, there was an increase of 13.5 per cent. The gain in April was 18 per cent., with the largest gain for this year so far coming in May, at nearly 50 per cent.

Foreign shipments for the entire year of 1930 amounted to only 138,365, as against 363,415 in 1929.

Following are the figures for the past eighteen months, compared with the corresponding periods of the preceding year. These figures were obtained from the monthly reports of car and truck sales, issued by the corporation, and include data on passenger and commercial cars made by the Buick, Chevrolet, Oakland, Cadillac and Olds divisions:

	1930	1929
January	12,051	32,139
February	15,292	33,926
March	17,849	43,881
April	18,296	51,084
May	11,314	44,404
June	9,845	37,050
July	9,260	32,317
August	9,470	20,834
September	8,891	19,263
October	5,239	23,545
November	9,102	21,232
December	11,756	3,740
	1931	1930
Year	138,365	363,415
January	12,668	12,051
February	15,630	15,292
March	20,252	17,849
April	21,623	18,296
May	16,952	11,314
June	11,398	9,845
Six mos.	98,523	84,642

JAMESTOWN IRON WORKS PLANS EXPANSION

Jamestown, N. Y., July 15.—The Jamestown Iron Works, which for the past fifty years has operated an iron foundry in Shearman Place, has filed plans with the city building commission for construction of a one-story steel and concrete factory building at 24-26 Taylor St., to cost more than $50,000, with machinery and equipment installations.

The business is operated by Thomas and John Maher, in conjunction with an automotive and general machine shop in Taylor Street. The new structure will be 60x100 feet in size and will comprise more than 8,000 square feet of floor space.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Fan Belt Type	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127	Lyc	V	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	§1130	75	Own	F	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Til	No
Buick 8-50	3170	114	Own	V	Bish-Bab	O	8	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 8-60	3795	118	Own	V	Bish-Bab	O	8	3⅛x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 8-80	4255	124	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 8-90	4340	132	Own	V	Bish-Bab	O	8	3⅛x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140–143	Own	V	Own	O	12	3⅛x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	V	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	V	No	O	6	3⅛x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175⅞	Own	V	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	70@3200	*Alum	4	—	AC	Sch	Yes
Chrysler 8	3365	*186⅛	Own	V	Yes	L	8	3⅛x4¼	260.8	5.30	31.25	88@3400	*Alum	5	Yes	AC	Str	Yes
Chrysler 8 De L.	——	187⅛	Own	V	Yes	L	8	3¼x4¼	282.1	5.20	33.80	94@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	V	Yes	L	8	3½x5	384.8	5.01	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	V	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169⅜	Own	V	Yes	L	6	3¼x4⅛	205.3	5.20	25.35	67@3200	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*177	Own	V	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	V	ole	L	6	3⅜x5	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	114¼	Own	V	Yes	L	6	3¼x4¼	211.5	5.20	25.35	68@3200	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	118¼	Own	V	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 610	2780	112	Con	V	Bish-Bab	L	4	3⅞x4¼	200	4.80	24.0	50@2800	*Alum	3	AC	AC	Til	Til
Durant 612	2820	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	V	Bish-Bab	L	6	3¼x4	199.0	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2925	**113	Own	V	——	†L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	V	——	L	4	3⅞x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Bros. 6	3100	113	Own	V	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	V	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	V	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3325	119–126	Own	V	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	V	Yes	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	V	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	V	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125–137	Own	V	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	V	Fu	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	V	Pines	L	8	2⅞x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4375	130-136	Own	V	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	V	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	AC	AC	Str	AC
Nash 960	2800	114¼	Own	V	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	V	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	V	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124–133	Own	V	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	V	Yes	H	8	3⅛x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113⅛	Own	V	——	L	6	3⅛x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	V	——	L	8	3⅛x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	V	——	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	V	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 43	4304	134–137	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Han	AC	Str	Un
Pierce-Arrow 41-42	4831	142–147	Own	V	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Han	AC	Str	Han
Plymouth	2710	*170	Own	V	——	L	4	3⅝x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	V	Yes	L	6	3⅛x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	V	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	V	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	V	Pines	L	6	3⅜x5	268.0	5.30	27.34	85@3200	Alum	7	Han	V-S	Sch	Un
Studebaker Six	2920	114	Own	V	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Pur	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	V	Dole	L	8	3⅛x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	V	Dole	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres. 80	4250	130	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	†4360	136	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	—	Bish-Bab	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own			O	8	3⅜x4½	322	5.10	36.4	155@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110–113	Own	V	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	—	AC	Til	Til
Willys 8-80 D	3131	121	Own	V	Var	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	—	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	V	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Ski	Til	Til	Til
Willys-Knight 95	3122	113	Own	V	Pines	K	6	2⅞x4⅜	177.9	5.5	20.7	60@3400	*Alum	7	*	AC	Til	AC

ALUMINUM SCREW MACHINE APPOINTS ROBT. CHESTNUT

Edgewater, N. J., July 15.—Announcement is made of the appointment of Robert Chestnut of Grantwood as factory manager of the Aluminum Screw Machine Products Comapny of Edgewater, subsidiary of the Aluminum Company of America. Chestnut came to the concern three years ago from Philadelphia as assistant to the head of the estimating department. Later he was made head of that department, and a year ago took entire charge of the manufacturing offices.

OPENS USED CAR LOT

Warren, Pa., July 15.—The Elliott Chevrolet Company, Inc., Chevrolet dealership, has removed its used car sales division from its salesroom and service station in Pennsylvania Avenue East to a modern used car lot almost directly across the street, where activities of the used car department will be conducted until late fall.

MARKET FOR TRACTORS

Washington, July 15.—Although few tractors are as yet operating in northeast Brazil, this section offers a large potential market for such machines, the Department of Commerce states.

The country is predominantly agricultural. There is a great opportunity to use tractors in road building and irrigation work, which must be done to open up the interior.

GARAGE PARTNERSHIP

Buffalo, N. Y., July 15.—The Day and Night Garage Company has been organized as a partnership by E. N. Fairchild, 39 Granger Place, and Louis Wilson, 332 Northumberland Ave., to establish and operate a storage and repair shop. It is planned to install a complete accessory department, with a full line of parts, accessories, tires and equipment.

Foreign Trade Opportunities

Washington, D. C., July 15—Foreign automotive trade opportunities just announced by the automotive division of the bureau of foreign and domestic commerce of the Department of Commerce are listed below.

Additional information may be obtained from the bureau and its district and co-operative offices by duly registered firms or individuals upon written request, giving the opportunity number.

52499—Barcelona, Spain; agency for automobile accessories.

52496—Montreal, Canada; purchase of automobile caps for gasoline tanks.

52584—Rio de Janeiro, Brazil; agency for purchase of automobile gasoline saving devices.

52607 — Rotterdam, Netherlands; purchase of automobile lifts.

52500—Basel, Switzerland; purchase of automobile switches and other lighting and ignition system parts.

52498—Paris, France; agency for automobile, truck and trailer parts.

52497—Rosario, Argentina; purchase of automobile and truck motors and marine motors.

PRESENTING SALON

Newark, N. J., July 15.—The Marmon Fanning Company is presenting the Marmon Sixteen Salon at its showroom, Grove Street and Central Avenue. All body styles of the Marmon Sixteen, all custom design, are on display. Francis Fanning, vice-president of the Marmon Fanning Company, arrived in Newark on Friday, driving a sixteen-cylinder model from Indianapolis.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmis'n and Speeds	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Spring Rear	Springs Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	*Del-R	Long	D-SM 3†	Un P	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 8-50	Tex	Del-R	Del-R	Own	Mun 3	Own	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.45	M	Sag	S 55¼	Own	Alem	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	——	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	Own 3	Own	Own	4.10	M	Sag	S 54	——	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Own	Own 3	Un P	Own ½	4.60	H	War	S 53⅜	Tryon	Al-Z	19x5.25
Chrysler 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.10	H	War	S 54⅝	——	Al-Z	17x7.50
Chrysler 8 De L.	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	3.81	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	Detr 3	UnP&MM	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.33	H	Own	S 53⅛	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	NP 3	Spic	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 610	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.96	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 612	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	5.41	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	*Own	Own	Own 3	Own	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	War-G	Spic	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Pros. 6	Link	Del-R	*Del-R	Long	— 3	—	——	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	*Del-R	Long	— 3	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	4.75	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	*Aut-L	Borg	War-G 3*	MM	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	War-G 3*	Un P	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	War-G 3*	Un P	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	War-G 3*	Un P	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	——	Aut-L	*Aut-L	Long	Own 3*	Spic	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon Eight-70	Diam	Del-R	*Del-R	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 54½	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	Detr 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	Mun	Spic	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.46	M	Gem	S 55	——	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.50	M	Gem	S 57⅛	——	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M-SM 3	MM	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M-SM 3	Un-P	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	6.50x19
Packard 903-904	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 56⅞	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 43	Gear	Del-R	Del-R	Long	Own 3	Spic	Own ½	4.08	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow 41-42	Chain	Del-R	Del-R	Long	Own 3	Spic	Own ½	*	Bendix	Ross	S 61	Faf	Al-Z	18x7.00
Plymouth	Var	Del-R	Del-R	Rock	Own 3	Own	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	Own 3	MM	Own ½	3.90	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	Own 3	Un-P	Own	4.42	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	Own 3	Un-P	Own	4.07	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	Own 3	Un-P	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	——	Del-R	Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	Own 3	Spic	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00
Willys-Knight 95	Chain	Aut-L	Aut-L	Borg	Own 3	Spic	Own	4.89	Bendix	Gem	S	Tryon	Alem	19x5.00

KEY TO ABBREVIATIONS

Weight—‡Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Studebaker, 7 pass. sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con. Continental; Lyc. Lycoming, Hall, Du Vaux-Hall Motors Corp.

Fan Belt Type—V, V-type; F, flat.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Fines, Fines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Fur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner. *Using both Floato & Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; N. E., North East; *Nash-Indicates twin ignition. *Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission—War G., Warner Gear Company; Detr, Detroit Gear; Mun, Muncie Gear; WC, Warner Corporation; D-SM—Detroit Synchro-Mesh; O-SM—Own, Synchro-Mesh; M-SM—Muncie, Synchro-Mesh. N.P.—New Process Gear Corp.

**Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets according to body type.

*Free Wheeling.
†Free wheeling on Auburn De Luxe models only.

Universals—Un P, Detroit Universal Products Company; Spic, Spicer Manufacturing Corporation; MM, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim, Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in. W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23.

†The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

VAUXHALL MOTORS, LTD., REPORTS LOSS IN 1930

London, July 15.—Vauxhall Motors, Ltd., controlled by General Motors Corporation, reports for year ended December 31, 1930, net loss, after allowing for depreciation, debenture interest, etc., of £88,536, against loss of £283,791 in 1929.

NEW REPAIR CONCERN

Jamestown, N. Y., July 15.—Martin Scott and Ely Gregory have organized the firm of Gregory & Scott as a partnership, to establish and operate a general automotive repair business in this city. The new concern has acquired a portion of a three-story building in East Buffalo Street. It is planned to install modern shop machinery and equipment, specializing in Hudson-Essex and Packard service work.

NEW TIRE CONCERN

New Brunswick, N. J., July 15.—A certificate of trade name for the O. K. Tire Store, 77 French St., has been filed at the office of the county clerk by Nathan Goldman of Highland Park and Herman Glickman of New Brunswick.

PLAN SUPER STATION

Buffalo, July 15.—The Goodyear-Wende Oil Corporation has filed plans for a large super service station to be erected at 786 Elmwood Avenue. Work will start immediately.

New Dealers Appointed

CALIFORNIA

Graham-Paige—Reynaud Brothers, Santa Rosa.

Nash—Gerald Thomas, Fresno; Nash-Robinson Company, Santa Monica; Davidson Lawrence & Son, Inc., Glendale; Homar Thompson, Hollywood; Pacific Nash Motor Company, Fresno.

Hudson—Main & Frazier, San Francisco; Bay Motor Company, Oakland Auto Electric Shop, Grass Valley; C. A. Posey, Glenburn; Sunset Garage, San Francisco.

Auburn—Weber & Beckett, Turlock; B. N. Kenney, Oakland.

CANADA

Hudson—Donat Cadieux, Montebello, Quebec; J. B. E. Audet, st. Anselmo, Quebec; Bloom & Sigalet, Ltd., Revelstoke, British Columbia; O. LaFlame, St. Bernard, Quebec; C. Audet, St. Cyprien, Quebec; W. A. Craig, Goderich, Ontario.

Nash—Ryder Nash Motors, Kapuskasing, Ontario.

COLORADO

Auburn—E. J. Johnson, Inc., (Distributor), Pueblo; Shane Motor Service, Denver; Alamosa Motor Company, Alamosa.

CONNECTICUT

Nash—Nash Hartford, Inc., Hartford.

Auburn—Thomas E. Bailey, Rockville; Burlburt & Preston, Inc., Derby; Robeerge Sales and Service, Wallingford; The DeLagrange Garage, Stonington; Branford Auto Company, Branford.

DISTRICT OF COLUMBIA

Nash—Theile's Nash, Washington.

FLORIDA

Graham-Paige—Miller O. Phillips, Orlando.

Nash—C. C. Kirby, Inc., Jacksonville; Barrington Motor Company, Bradenton.

Auburn—Osceola Motors, Inc., Fort Lauderdale.

GEORGIA

Auburn—Kutchey Motor Company, (Distributor), Savannah.

IDAHO

Auburn—Hughes Brothers, Kellogg.

ILLIONIS

Nash—W. W. McBane, Metropolis.

Hudson—Main Garage, Batavia.

INDIANA

Graham-Paige—Hutchison Automobile Company, Inc., Indianapolis.

Auburn — Russell-Beesley Sales Company, Rochester.

Nash—Henderson-Adams Corporation, Fort Wayne.

IOWA

Nash—N. W. Larson Company, Inc., Mason City.

Auburn—St. Mary's Auburn Company, St. Mary's; R. M. Boyce, Creston; Ray O. Carson, Valley Junction.

Hudson—J. M. Higgins, Storm Lake; Riepe Motor Company, Delmar.

KANSAS

Nash—Powers Nash Sales and Service, Salina.

Hudson—G. N. Kysar & Sons, Wakeeney.

KENTUCKY

Auburn—Webber Motor Company, Richmond.

MAINE

Nash—Gaudet Nash Company, Rockwood.

MARYLAND

Auburn—Hoffman Brothers, Hagerstown.

MASSACHUSETTS

Nash—David C. Spink & Co., North Adams; C. G. Robbins, Framingham.

Auburn—Cohen-Goldsmith, Inc., Worcester; Brownell & Burt, Middleboro.

MICHIGAN

Graham-Paige—Lipke & Neault Auto Company, Bessemer.

Nash—Petoskey Nash Company, Petoskey.

Auburn—Tawas Auto Sales, East Tawas; Perry Sales Company, Rogers City; Perry Sales Company, Onaway; Kaufman's Automotive Sales and Service, Cheboygan; H. Ben Gocha, Gaylord.

Hudson—Eastwood Motor Sales, Halfway.

MINNESOTA

Nash—Stang Brothers, Jordan.

Hudson—Wilson's Sales and Service, Spicer; Hanson Brothers, Le Sueur; M. B. Morris, Faribault.

Production -- Engineering -- Factory -

The Exhaust Gas Problem

By A. H. VANCE
Engineer, Bensonville, Ill.

The following report, in part, is a paper presented before a recent meeting of the Chicago section, Society of Automotive Engineers. It will appear serially in the Automotive Daily News.

When gasoline and air mixtures are burned in the cylinders of an engine, chemical changes occur. These changes can be classed, for purposes of simplification, as complete and incomplete, two complete changes and one incomplete change occurring during combustion. One of the complete changes produces water vapor. The other produces carbon dioxide gas. Both of these elements are stable and undergo other changes, when exhausted into the atmosphere only, as regular processes in nature. They do this without waste and without destructive tendencies toward other mediums.

But the incomplete change which results from the combination of one atom of carbon with one atom of oxygen produces a wasteful and deadly gas, known as carbon monoxide. The presence of this gas in the exhaust represents a waste of fuel which is proportional to the percentage present in the exhaust. Its deadliness to animal life does not seem to be proportional to anything, minute quantities producing the same final result as larger quantities.

The exhaust gas problem is so closely connected to the combustion problem that it is next to impossible to consider them separately. And up to the present time both of them have consistently defied all the efforts which have been made to solve them. The combustion problem has been expressed many times in the simple question, "What happens to the mixture when the spark occurs?" And the answer has been, simply, "It bufns," excepting, of course, those times when it didn't burn. In these latter cases it was found to be much easier to find out why it didn't burn than it was to find out why it did burn. And so the major problem has remained unsolved.

But the exhaust gas offers something tangible, which can be taken and analyzed. It represents a result of the transformation of heat into power, and an analysis of its constituents, when combined with the other results of this change, gives a complete story of what has happened during and before combustion. And so, while the exhaust gas offers a problem in itself, it also offers a plainly marked trail which leads directly back to a definite starting point.

The simplification of analytical problems is always desirable in order to prevent the hiding away of important facts under masses of data. Therefore it might be well to consider briefly, the nature of the elements which are taken into the cylinder previous to combustion.

Gasoline consists of about 85 per cent. of carbon by weight, combined with about 15 per cent. of hydrogen by weight. This combination of elements is mixed, more or less thoroughly, with air containing about 22 per cent. oxygen, and 78 per cent. nitrogen and other inert gases. The function of the oxygen, being to combine with the carbon and hydrogen contained in the gasoline, and thus produce the phenomenon which we know as combustion, or burning. The inert gases pass through the engine without chemical change, so they need not be considered here.

Now, in order to complete the combustion of the elements found in the fuel, we find that the hydrogen requires one atom of oxygen to burn two atoms of hydrogen. The carbon content of the fuel requires two atoms of oxygen for the complete combustion of one atom of carbon. If this is not available, then the carbon will combone with one atom of oxygen, producing an unstable combination at least to the extent that it will use every possible effort to effect a combination with another atom of oxygen. But without going too deeply into mathematics, we will find that this will work out for mixture proportions of about one pound of gasoline to sixteen pounds of air, by weight.

But in actual practice we find that these proportions cannot be maintained. The thorough mixing of the fuel vapor, with the proper amount of air, in such a manner that intimate contact is had between each particle of combustible material, and the required amount of oxygen is virtually impossible. The actual reasons for this are not always obvious when ordinary engine test methods are used. But the fact remains that we are forced to so adjust our mixture ratios that an insufficient supply of oxygen is present in the mixture. These mixture ratios will be found to range all the way from 11 to 1 up to about 14 to 1.

This failure of theory and practice to agree is due, as shown by the exhaust gas analysis, to poor mixing, to poor distribution to the cylinders in a multicylinder engine and to poor vaporization of the fuel when it leaves the carburetor.

These things are not shown us by ordinary engine test methods. Too many changes occur while an engine is running to make these figures strictly reliable when they are used alone. Engine test data of this sort is really incomplete, and incomplete data is worse than useless, as it is apt to be misleading. But the analysis of the products of combustion will not only complete the record, but if used alone they will give exceptionally accurate checks on engine economy. In addition, they will show the mixture qualities and conditions of the burning within the cylinder itself.

Increasing the accuracy of the test data alone should be a sufficient incentive for those working with economy problems to adopt gas analysis as a regular analytical study of engine and carburetor performance. But if these reasons are not enough, there is still another one which induces almost any manufacturer engaged in building engines or carburetors to spend some time with the gas anlysis problem.

This latter reason might be called a commercial reason rather than an engineering one.

Here the author related an incident which occurred while employed by a carburetor manufacturer which

(Continued on Page 9)

ETHYL CORP. TO BUILD LABORATORY AT BATON ROUGE

The Ethyl Gasoline Corporation has announced that a new laboratory will be constructed at Baton Rouge, La. It will be in charge of E. O. Anderson, who now directs the laboratory at New Orleans.

One hundred refiners in the United States and Canada are now co-operating with the knock-testing laboratories of the Ethyl corporation in Kansas City, Mo.; Tulsa, Okla.; Yonkers, N. Y., and with two units in Detroit. The Baton Rouge laboratory will be completed in about three months and will be the center of an area extending from Texas to Florida.

"The Ethyl system now tests 20,000 samples a year," said Dr. Graham Edgar, director of the Ethyl laboratories, with headquarters at Yonkers. "The addition of the Baton Rouge plant and the enlargement of our Detroit fuel-testing laboratory, which is now under way, will facilitate the distribution of anti-knock fuel.

"Testing methods are undergoing constant modification and improvement in the central laboratory at Yonkers, where we also work out a standard practice for the entire system," Dr. Edgar declared. "Fundamental scientific research in motor fuels, as well as some theoretical work, is carried on. It is here that we determine the most efficient methods of keeping records and reports.

"Every sample received and tested has a complete 'case history,' whether it is sent in by a company desiring information or is picked up from some countryside pump by one of our inspectors.

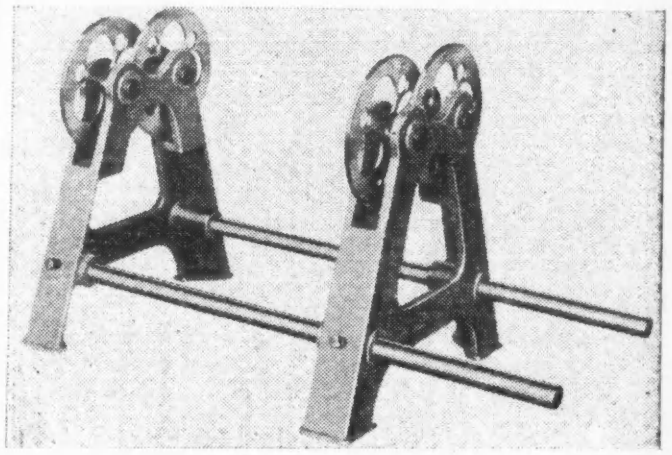
"We make a report to all refineries every six months based on our graphs, which indicate the main characteristics of their product. We sample all types of motor fuels, so that we have a comparative scale and know what is being sold throughout the country.

"All of the laboratories, which serve large contiguous areas, act as clearing houses for tests on gasolines, both base stock and mixed Ethyl gasoline submitted by refiners. This makes it possible to keep Ethyl gasoline under inspection and control.

"Some large refiners are spending large sums on gasoline research in an effort to meet the demand for anti-knock fuel suitable to high compression motors. The Ethyl engineering laboratory in Detroit concerns itself entirely with problems involved in determining the correct anti-knock fuels for high-compression motors, and co-operates with automobile manufacturers in this research."

The fuel testing laboratory at Detroit is being further enlarged and additional equipment is to be installed.

New Sundstrand Balancing Tool for Light Parts



SUNDSTRAND BALANCER for lightweight parts

Added to its line of balancing tools, the Sunstrand Machine Tool Company, Rockford, Ill., announces a tool which is claimed to be unusually accurate for the balancing of lightweight parts, such as aluminum fans, motor armatures, etc.

The balanced knife edge steel disks are mounted on hardened steel spindles which revolve on steel balls inclosed in hardened and ground races. This construction, the manufacturer states, is unusually sensitive because the spindle has a direct pivoting action on the ball bearings. The equipment is portable and its construction is such that leveling is not necessary.

The manufacturer further claims that the tool comprises such sensitivity that a 1½-pound disk can be thrown out of balance with a five-grain weight on a 3-inch radius.

Specifications of the tool are as follows: Swing, 22 inches; maximum distance between standards, 20 inches; capacity, 12 pounds; weight, 40 pounds.

MOVING MACHINERY INTO NEW BAKELITE PLANT

New Brunswick, N. J., July 15.—Construction work on the new Bakelite factory, located in Middlesex Borough, which was begun about a year ago, has been finished, and the machinery is being assembled from the other plants and is being installed. It is estimated that operation would be begun in parts of the new factory in about three or four weeks. The establishment of the local plant will centralize operations from the Chicago and Perth Amboy factories.

NEW LITERATURE

The Automotive Daily News will publish announcements of new literature of interest to its readers. The booklets may be obtained free of charge by ordering them by number from the Technical Editor, Automotive Daily News.

A-28—Removing carbon with denatured alcohol.

A-29—Pamphlets on electric heating furnaces, electric tempering baths, oil burners.

A-30—Manual of practical cold gluing methods.

A-31—Modern automobile finishing methods.

CUMULATIVE NEW PASSENGER CAR

In this table 10 states and the District of Columbia **Returns for today: Minnesota, Montana, South**

States	Auburn	Austin	Buick	Cadillac	Chevrolet	Chrysler	Cord	De Soto	De Vaux	Dodge	Durant	Essex	Ford	Franklin	Graham	Hudson	Hupmobile	La Salle
Delaware	5	1	47	4	200	20		3		6	6	10	162		1	5	2	2
Illinois	261	10	383	97	2979	416	21	191	35	368	15	229	3429	20	147	88	115	68
Maryland	54	2	118	15	1347	80	1	42	2	40	17	76	915	5	38	27	43	7
Minnesota	54	2	97	6	1651	112		47	10	85	11	85	923		62	39	33	8
Montana	7	1	27	1	241	29		22	4	19	6	9	186	4	3	7	1	2
N. Dakota	5	1	26		349	19		1	2	22	7	12	271		7	9	3	1
S. Ca'lina	14	2	40	1	670	42		22		32		20	537		1	14	10	4
Utah	11		20	5	278	9		10	10	27	3	27	213		10	10	5	1
W. Va.	28	4	43	6	686	84		29	8	83	1	41	608	1	32	20	14	4
Wisconsin	76	2	175	13	1278	117	7	70	35	124	16	107	885	3	37	36	25	12
Dist. of C.	40	4	124	12	833	56	1	50		67	6	44	935	3	25	11	34	11
Totals	555	29	1105	160	10512	984	30	487	106	873	88	660	9064	36	363	266	285	120
Dela., '30	1		46	11	189	35	1	5		5	11	13	348	1	7	6	10	5
Ill., 1930	68		656	61	3117	490	26	298		449	71	314	6752	58	232	167	217	88
Md., '30	12		131	7	1066	83	1	24		69	18	99	1429	4	72	31	45	11
Minn., '30	7		93	6	1725	139	3	43		92	23	69	2789	2	93	35	53	14
Mont., '30	5		27	3	270	26	2	29		22	13	26	369	6	4	9	14	7
N. D., '30	1		23	1	590	47		8		35	23	23	831	1	17	12	2	
S. C., '30			34	1	389	16		23		20	2	26	799	1	5	15	9	
Utah, '30	9		28	5	324	34	2	31		42	45	35	586	2	33	17	9	3
W. Va., '30	6		60	2	805	63	3	35		129	29	69	1265	6	60	30	21	8
Wis., '30	19		208	14	1666	168	2	71		170	48	160	2591	14	96	71	36	6
D. of C., '30	11		68	7	431	32	1	18		33	13	46	1078	3	39	22	32	15
Totals, '30	139	*	1374	118	10572	1133	41	585	*	1066	296	880	18837	98	658	415	448	157

*Not in production

Equipment - - - Development

Exhaust Gas Analysis

(Continued from Page 8)

resulted in the purchase of a CO_2 recorder to assist in study and improvement of the carburetor.

This machine was a Hays continuous carbon dioxide recorder, operating by water pressure which was taken direct from the water mains; all operations, except the movement of the chart, which was made by clock-work, being made by water pressure.

In operation the exhaust gas is drawn into the machine through a suitable connection with the exhaust line, and passes directly into a burette, where it is accurately measured. The gas then passes into an absorption chamber, where the carbon dioxide is absorbed into a caustic potash solution. It is allowed sufficient time in this chamber, in order to absorb all the carbon dioxide, after which it is transferred into a calibrated chamber connected with a bellows. The bellows is expanded by this gas, and thus moves an arm carrying a pen across the chart. The amount of this movement is controlled directly by the amount of gas which remains after carbon dioxide has been removed from the original volume.

These operations occur at two-minute intervals, and are accurate to within one-half of one per cent. This accuracy was found to be sufficient for comparative purposes, but in order to obtain a higher degree of accuracy when it was needed, we purchased a hand Orsat machine. The latter machine was provided with three chambers and could be used for the analysis of carbon dioxide, carbon monoxide and oxygen.

In due time these machines arrived, and the recorder was installed in the laboratory, convenient to the engine stands. Connections were made with the individual exhausts from the cylinders by extending short lengths of steel tubing into the ports, and to a point as close to the exhaust valve as was found to be practical. An outside manifold system was designed so that changes could be made quickly, when it was desired to change the recorder connection from one cylinder to another. With these preparations all completed, we set to work to solve the distribution, both carburetor and manifold, without further delay.

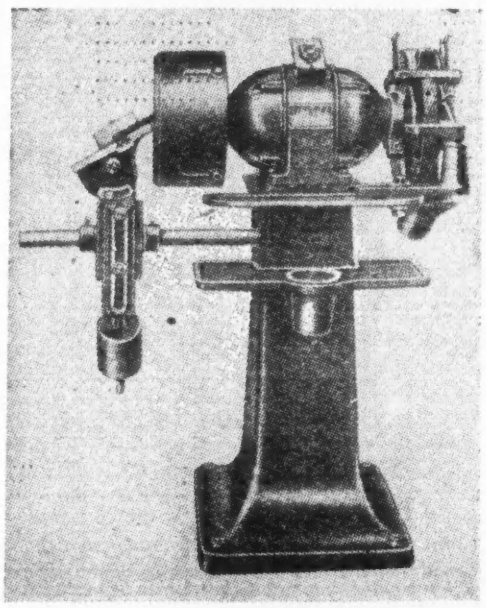
The engine was warmed up as usual and the recorder was placed in operation. All the regular test data were taken, and also records were kept of intake manifold temperatures at three points along the manifold. Due to the time required to clear the machine of old gas and to obtain the correct analysis of the new sample being taken in, considerable time elapsed for this run. Fuel economies were taken at frequent intervals during this time, as were also a number of other readings.

We finally settled down to the serious business of studying distribution and combustion by the exhaust gas route. And as time passed we learned many things about what can happen in an engine, an intake manifold or a carburetor and show up as something very definite in the exhaust gases.

Among other things we learned that the spread of time between the readings taken for the first cylinder and those taken for the last cylinder was too great when we used the carbon dioxide recorder. For this reason we finally decided to use the recorder for checking the test runs by sampling gas from the main exhaust line only. The results obtained in this way were very interesting and also useful.

(To be Continued)

U. S. Grinder for Tungsten Carbide, High Speed Tools

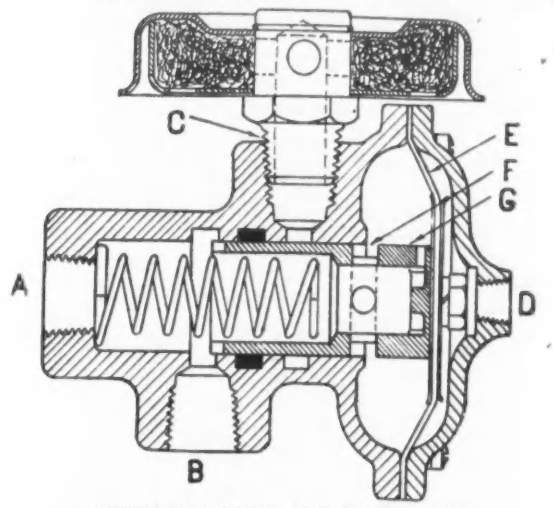


GRINDER for sharpening tungsten-carbide and high-speed tools

A grinder intended especially for sharpening tungsten-carbide and high-speed steel tools has been developed by the United States Electrical Tool Company, Cincinnati, O. One tool-rest of this machine comprises an adjustable table and a sliding guide. These hold the tool securely against the cup-wheel at any desired angle and prevent the grinding away of more stock from the tool than is necessary to sharpen it. Longer tool life and lower tool costs are thus obtainable, it is claimed. The table is conveniently set to any angle by using the protractor. This tool-rest is also adjustable for height and for wheel wear.

The two-h. p. motor which drives this grinder runs at 1,750 r. p. m. and can be furnished for any standard voltage, a. c. or d. c. The grinder can be supplied with a cup-wheel and a swinging table on both ends.

New B-K Relay Valve Eliminates Time Lag In Brake Installations



SECTIONAL VIEW of B-K relay valve

A relay valve designed to eliminate the time lag in tractor-trailer brake installations has been developed by the Bragg-Kliesrath Corporation, South Bend, Ind.

It is attached to each vacuum suspended type of trailer booster and admits air directly to the vacuum cylinder, graduated according to the desired amount of braking without the necessity of passing air through the full line from control valve to cylinder.

For six-wheel trucks or trailers, independent brake boosters may be mounted directly on each braking wheel with master relay valve, instead of a master booster operating all brakes, to simplify brake design.

The relay valve may be used with every type of trailer installation combination, it is claimed.

The operation of the relay valve is shown in the illustration. (A) shows connection of relay valve to the side of booster piston, which is connected to braking mechanism; (B) the connection to vacuum line connecting opposite side of booster piston to manifold; (c) atmospheric inlet; (D) connection to control valve.

"When motor is running, and brakes are in released position, vacuum is present in the booster cylinder on both sides of the booster piston and in both sides of the relay diaphragm (E), and in both lines connecting tractor to trailer; the diaphragm (E) is held in position shown by means of spiral spring.

When operator opens control valve, atmosphere is admitted through control valve into air line connected by ¼-inch pipe to relay valve at (D); atmospheric pressure exerted against the rear of diaphragm (E) through connection (D) causes the diaphragm to move the piston (G) forward until the piston port (F) registers with the port at atmospheric port (C), and at the same time closes vacuum port (B); in this position atmosphere is instantly admitted through port (C) into booster cylinder through opening (A), causing the booster piston to move forward and apply the brakes.

When operator closes control valve, vacuum is again restored to diaphragm chamber at (D); with atmospheric pressure on opposite side of diaphragm (E) aided by spiral spring the piston (G) is moved rearward until vacuum port (B) is again open to booster cylinder through (A), and at the same time closing atmospheric port (C) to booster. In this position vacuum is again restored to both sides of booster piston, permitting the immediate release of brakes.

It should be noted that the action of the relay valve is in perfect synchronism with the control valve, and the braking action is under complete and perfect control of the operator, who at will can make any desired degree of application.

The B-K relay valve is supplied with standard ½-inch nipple for attachment to booster. In ordering, specify by part number.

REGISTRATION STATISTICS, JUNE, 1931

Carolina, Utah, West Virginia, District of Columbia

States	Lincoln	Marmon	Nash	Oakland	Oldsmobile	Packard	Peerless	Pierce-Arrow	Plymouth	Pontiac	Reo	Studebaker	Whippet	Willys	Willys-Knight	Miscellaneous	Totals
Delaware	1	1	11	5	16	6		2	6	30		7		4	2		565
Illinois	33	8	192	74	560	130	24	26	145	585	22	303	1	213	34	14	11,241
Maryland	7	3	90	33	48	26	10	9	55	167	10	63	4	49	7	2	3,412
Minnesota	3		37	17	99	13		4	155	219	5	64	4	144	9		3,998
Montana		1	16	7	13			1	21	36		8	2	24	2		700
N. Dakota	1	1	13	3	10				32	41	3	9	3	33	5		889
S. Ca'lina	1		3	2	16	3			24	35	2	10		7			1,512
Utah		2	15	5	13	2			3	17	1	11	1	10	1		720
W. Va.	5	1	23	19	40	8			84	103	11	40		91	2	1	2,120
Wisconsin	4	4	149	34	102	24	2	3	97	224	11	102	5	112	12	3	3,906
Dist. of C.	6	7	47	18	66	25		6	30	107	2	78		28	6	1	2,683
Totals	61	28	596	217	983	237	36	51	652	1564	67	695	20	715	80	21	31,746
Dela., '30	1	1	3	5	4	17		2	22	29		9	3	6	1	1	798
Ill., 1930	46	72	405	97	446	323	13	42	543	409	38	422	82	186	88	63	16,339
Md., '30	4	11	66	32	59	57	1	8	111	98	12	73	36	37	16	24	3,747
Minn., '30	3	12	76	37	104	32	1	2	392	181	13	116	67	124	26	7	6,379
Mont., '30		5	25	11	9				37	33	4	15	16	13	5		1,005
N. D., '30		3	43	14	21	1			78	52	3	21	39	53	9	3	1,954
S. C., '30	1	1	9	2	10	9			16	16	2	8	3	2	1		1,420
Utah, '30		7	17	16	21	12		1	22	19	3	23	4	2	2	3	1,357
W. Va., '30	2	23	41	32	40	28		3	118	91	5	46	45	76	16	5	3,162
Wis., '30	1	19	199	60	138	50	10	15	330	207	21	146	69	122	22	15	6,764
D. of C., '30	5	5	21	29	57	48	12	4	58	71	3	43	6	6	13	6	2,236
Totals, '30	63	159	905	335	909	577	37	77	1727	1206	104	922	370	627	199	127	45,161

GIDDINGS MAKES NEW 2-SPINDLE PRECISION BORING MACHNE

The new No. 70 high power, precision horizontal boring and drilling machine has been recently added to the line of the Giddings & Lewis Machine Tool Company, Fond du Lac, Mich.

The machine features two spindles, the conventional main spindle and an auxilliary high speed spindle.

The 7-inch diameter main spindle furnishes 36 speeds, in geometrical progression. The auxiliary high-speed spindle furnishes an additional 36 speeds of a range of four times that of the main spindle. The combination range is from 3 to 720 r. p. m. By means of a feed unit built on one of the cover plates of the head, 18 speeds to either spindle are obtainable.

A wide selection in the size and travel is offered.

Ratio of High Priced Cars To Total in Use Greatest In N. Y. and Connecticut

(Continued from Page 1)

or more of the total registrations. In no state, of course, do the higher priced cars outnumber those in the lower range. In five states, however, those of the higher priced group account for 42 per cent. or more of the total. These states, as is seen in the accompanying compilation, are all in New England or the East.

Of the twelve states in which the ratio of lower priced cars in use is greatest, seven are in the South and the other five in the agricultural section of the Middle West. Inasmuch as the Southern states in this list are chiefly agricultural, it is clear that cars below $1,000 in price have their best markets in the agricultural regions of the country.

On the other hand, eight of the eleven states in which the ratio of higher priced cars is greater are to be found in New England and the East, where agriculture is of less importance and the population is more congested. As a matter of fact, a still closer study of the statistics reveals that the ratio of higher priced cars to the total is the highest in the larger cities.

In two states of the South, Arkansas and Mississippi, cars priced under $1,000 constitute 87 per cent. of the total registrations. These are the leading states in the ratio of this price class. In South Carolina, the ratio of these cars is 85 per cent., in Alabama, 84 per cent.; North Carolina, 83 per cent.; Tennessee and Texas, 82 per cent.

In the Middle West, North Dakota reports 84 per cent. in the low priced classification, South Dakota, Iowa, Kansas and Oklahoma, 82 per cent.

Of the twenty-six states comprising the low-priced group, eleven were in the South, six in the Middle West, five in the Rocky Mountain region, two in the Great Lakes sector and two on the Pacific Coast.

In Connecticut and New York the ratio of higher priced vehicles to the total is the highest for any states in the country, both boasting 46 per cent. in the higher group. New Jersey is third, with 45 per cent.; Rhode Island, next with 43; then Massachusetts, with 42, and California, with 39.

Of the twenty-two states in which higher priced cars accounted for 27 per cent. or more of the total, six are in New England, six in the East, four in the Great Lakes region; three in the Rockies, two in the South and California alone on the Pacific Coast.

In the District of Columbia, 39 per cent. of the total cars registered are in the higher range.

In the following table are the twenty-six states in which the low priced cars constitute 74 per cent., or more, of the total registrations as of July 1, 1931:

	% Cars Listing Under $1,000	% Cars Listing Over $1,000
Arkansas	87	13
Mississippi	87	13
South Carolina	85	15
Alabama	84	16
North Dakota	84	16
North Carolina	83	17
South Dakota	82	18
Iowa	82	18
Kansas	82	18
Oklahoma	82	18
Tennessee	82	18
Texas	82	18
Kentucky	81	19
Nebraska	81	19
New Mexico	81	19
Georgia	80	20
Louisiana	80	20
Idaho	79	21
Missouri	79	21
Indiana	77	23
Minnesota	77	23
Colorado	76	24
Montana	75	25
Oregon	74	26
Utah	74	26
Washington	74	26

Below are listed the twenty-two states, in which the ratio of higher priced cars to the total is the greater:

	% Cars Listing Under $1,000	% Cars Listing Over $1,000
Connecticut	46	54
New York	46	54
New Jersey	45	55
Rhode Island	43	57
Massachusetts	42	58
California	39	61
Dist. of Columbia	39	61
Pennsylvania	37	63
Illinois	35	65
New Hampshire	35	65
Vermont	35	65
Virginia	35	65
Nevada	34	66
Maine	33	67
Florida	32	68
Ohio	29	71
Delaware	28	72
Maryland	28	72
Wyoming	28	72
Arizona	27	73
Michigan	27	73
West Virginia	27	73
Wisconsin	27	73

GAIN IN RUBBER CONSUMPTION OVER JUNE LAST YEAR

(Continued from Page 1)

released by the Rubber Manufacturers' Association. Consumption for June 1931 is 10.9 per cent. over June a year ago.

Imports of crude rubber for June amounted to 45,776 long tons, an increase of 44.3 per cent. over the May figure of 31,720 long tons, and 7.3 per cent. over June, 1930.

The association estimates total domestic stocks of crude rubber on hand June 30, at 225,536 long tons, an increase of 2.1 per cent. over May, and 48.8 per cent. over June 30, 1930.

Crude rubber afloat for the United States ports on June 30 is estimated at 69,421 long tons, as against 73,560 long tons on May 31 and 58,658 long tons on June 30, 1930.

CURRENT PRICES OF PASSENGER CAR MODELS

AUBURN—8-98. 127 W. B.

Standard Models

2-dr. Brougham..945 | Con. Cabriolet..1,045
4-dr. Full Sedan.995 | Con. Phae. Sed..1,145
8 Man's Coupe.995

AUBURN—8-98 A. 127 W. B.

Custom Models

5 4-dr. Sedan...1,195 | Cabriolet (R.S).1,245
8 Man's Coupe.1,195 | 5 Con. Pha. Sed.1,345
5 2-dr. Brough.1,145

AUSTIN—4 cyl. 75 W. B.

Business Coupe..330 | De Luxe Coupe ..525
Standard Coupe.395 | 2 Cabriolet 550
Runabout 395

BUICK—8-50. 114 W. B.

2 Bus. Coupe...1,025 | 5 Phaeton 1,035
5 2-dr Sedan...1,035 | 4 Spt. Coupe....1,055
4 Spt. Roadster.1,055 | 5 4-dr Sedan....1,095
4 Conv. Coupe ..1,095

BUICK—8-60. 118 W. B.

2 Bus. Coupe...1,285 | 5 Phaeton 1,335
4 Spt. Coupe...1,325 | Spt Roadster....1,335
5 4-dr. Sedan...1,355

BUICK—8-80. 124 W. B.

4-Coupe .....1,535 | 5 4-dr. Sedan...1,565

BUICK—8-90. 132 W. B.

4 Spt. Roadster.1,610 | 5 4-dr. Sedan....1,785
7 Touring ....1,620 | 4 Conv. Coupe ..1,785
2 Spt. Coupe...1,720 | 7 4-dr. Sedan....1,935
5 Coupe .....1,765 | 7 Lim. Sedan....2,035

CADILLAC—V-8. Fisher Custom. 134 W B.

2 Coupe .....2,695 | 2 Con. Coupe....2,945
5 Coupe .....2,795 | 7 Sedan 2,945
5 Sedan .....2,795 | 5 A. W. Phaeton.2,795
5 Town Sedan..2,845 | 7 Imp. Sedan....3,095
2 Roadster ....2,845 | 7 Touring (Fleetwood) 2,945
5 Phaeton 2,945
4 Coupe .....4,045 | A. W. Phaeton..4,895
Con. Coupe 4,045

CADILLAC—V-16. 148 W. B.

Fleetwood Custom.

2 Roadster ....5,350 | 2 Coupe 6,850
A. W. Phaeton..5,750 | 2 Con. Coupe ...6,900
2 Coupe .....5,800 | 5 Club Sedan ...6,950
5 Coupe .....5,950 | 5 Sedan 6,950
5 Club Sedan....5,950 | 5 Sedan Cabrio..7,125
5 Sedan .....5,950 | 7 Sedan 7,225
5 Sedan Cabrio.6,125 | 5 Imperial 7,300
7 Sedan .....6,225 | 5 Imp. Cabriolet.7,350
5 Imperial .....6,300 | 7 Imp. Sedan....7,525
5 Imp. Cabrio...6,350 | Town Cabriolet
5 Phaeton .....6,500 | (Opera seats).8,750
7 Imp. Sedan...6,525 | Town Cabriolet (quarter windows) 8,750
Town Cabriolet (opera seats)..6,525 | Town Cabriolet (leather quarters) 8,750
Town Cabriolet, (q'rter. Win.).6,525 | Lim. Brougham.8,750
Town Cabriolet, (full leather).6,525 | Lim. Brough'm.9,200
Town Brougham.9,700

CHEVROLET—6-Cyl. 109 W. B.

2 Roadster .....475 | 2-4 Sport Coupe (5 wire wheels) .865 | 5 Phaeton 915
2-4 Sp. Roadster.495 | (5 windows) 575
5 Phaeton .....510 | 5 Coupe 595
2 Coupe (3 win.)..535 | 5 Sedan 635
2 Coupe (5 win.)..545 | 5 Special Sedan....650
5 Coach .....545 | Con Cabriolet 615
2-4 Coupe (R.S.) (5 wire wheels) .885 | Lan. Phaeton 650
2-4 Coupe (RS) (4 wood wheels)...885 | (RS) 935

CHRYSLER—8-cyl. *1864 O. A.

2-4 Roadster ...1,595 | 5 Royal Sedan
2-4 Royal Coupe (Standard) ...1,495 | (Special) 1,565
5 Royal Sedan (Standard) ..1,525 | 2-4 Sport Roadster (5 wire wheels) 1,595
2-4 Royal Coupe (Special) .....1,535 | 2-4 Con. Coupe. 1,970

CHRYSLER—8 cyl. *1874 O. A.

De Luxe Models

2 Coupe (R.S.)..1525 | 4 Con. Coupe
4 Roadster (RS) 1545 | (R. S.).....1585
5 4-dr. Sedan ..1565 | 5 Phaeton 1970

CHRYSLER—Imperial. 8-cyl. 211 O. A.

5 Sedan .....2,745 | 7 Sedan Lim....3,145
5 Sedan (CLC) .2,845 | 2-4 Cus. Coupe..3,150
7 Sedan 2,945

CORD—8-cyl. 137½ W. B.

Sedan .....2,395 | Cabriolet 2,495
Brougham .....2,395 | Phaeton Sedan..2,595

DE SOTO—Six. *169¾ O. A.

5-2 dr. Sedan ..695 | 5 Touring 795
2 Staud. Coupe ..740 | 2-4 Roadster 790
2-4 Coupe (RS) .775 | 2-4 Con. Coupe
5-4-dr. Sedan....775 | (R. S.) 825
5 De L. Sedan....825

DE SOTO—8-cyl. *127 O. A.

2 Business Coupe 965 | 5 Touring 1,035
2-4 Road. (RS)..995 | 5 De L. Sedan...1,065
2-4De L. Coupe (RS) .....995 | 2-4 Con. Coupe (RS) 1,075
5 4-Dr. Sedan....995

Above listing can also be had in De Luxe models at same price.

DE VAUX—6 cyl. 113 W. B.

Phaeton .....595 | Standard Sedan (4 wood wheels, spare rim) 695
Standard Coupe (4 wood wheels spare rim).....625 | Special Sedan (5 wire wheels, spare mounted in rear).....705
Business Coupe (5 wire wheels, one in fender well).....645 | Custom Coupe....795
Sport Coupe .....675 | Custom Sedan ...795

DODGE—6-cyl. 111¼ W. B.

2 Coupe (5 wire wheels, R. M.)..815 | 2-4 Coupe (R. S.) (5 wire wheels, 1 F. W. 850
2 Coupe (4 wood wheels) .....815 | 2 Coupe (5 wire wheels, 2 F. W.)850
2 Coupe (5 wire wheels, 1 F.W..830 | 5 Sedan (5 wire wheels, 1 F. W.)860
2-4 Coupe (R. S.) (5 wire wheels, R. M.) .....835 | 5 Sedan (4 wood wheels, 1 F. W.)860
2-4 Coupe (R. S.) (4 wood wheels, R. M.) .....835 | 5 Phaeton (4 wood wheels) 865
5 Sedan (5 wire wheels, R. M.).845 | 2-4 Coupe (6 wire wheels, 2 F. W.) (R.S.) 870
5 Sedan (4 wood wheels, R. M.).845 | 5 Sedan (4 wood wheels, 2 F. W.)875
5 Sedan (6 wire wheels, 2 F. W.)880

DODGE— 8-cyl. 118¼ W. B.

2-4 Coupe (R. S.) (5 wire wheels, R. M.) .....1,095 | 5 Sedan (4 wood wheels, R. M.).1,135
2 Coupe (5 wire wheels, R. M.).1,095 | 5 Sedan (5 wire wheels, 1 F. W.) 1,150
2-4 Coupe (4 wood wheels) .....1095 | 5 Sedan (5 wood wheels, 2 F. W.) 1,165
2-4 Coupe (6 wire wheels, 2 F. W.).....1,130 | 5 Sedan (6 wire wheels, 2 F. W.) 1,170
5 Sedan 5 wire wheels, (R.M.).1,135

DURANT—619 6-cyl. 109 W. B.

5 4-dr. Sedan... 695

DURANT—610 4-cyl. 112 W. B.

Business Coupe (wood wheels)..735 | Coupe (R. S.) (wire wheels)...770
Business Coupe (wire wheels)...750 | Sedan (wood wheels) 795
Coupe (R. S.) (wood wheels)..755 | Sedan (wire wheels) 780

DURANT—612 6 cyl. 112 W. B.

Business Coupe (wood wheels) .760 | Sedan (5 wire wheels 810
Business Coupe (wire wheels) .775 | 5 Sps. Coupe (R.S.) (5 wire wheels).830
Coupe (R. S.) (wood wheels).780 | 5 Sps. Road. (R.S.) (6 wire wheels).845
Coupe (R. S.) (wire wheels)..795 | Sedan 6 wire wheels) 845
Sedan (wood wheels) 795

DURANT—614 6 cyl. 112 W. B.

De L. Coupe 6 dem. wood wheels) .....965 | De L. Sedan (5 dem. wood wheels 995
De L. Coupe (6 dem. wire wheels) .....965 | De L. Sedan (6 dem. wire wheels) 995

LSSEX—6-cyl. 113 W. B.

2 Coupe .....595 | 5 Town Sedan ..735
5 Coach .....595 | 5 Touring Sedan. 725
4 Coupe (R.S.) ..645 | Spec. Sedan 855
5 Stand. Sedan...695 | 7 Sedan (119 w. b.)895
4 Sport Roadster 725

FORD—Model A. 4-cyl. 103½ W. B.

2 Roadster .....430 | 5 De L. Phaeton 580
5 Phaeton .....435 | 5 Standard Sedan (3 windows).....590
2 De L. Roadster 475 | 4 Cabriolet 595
2 Coupe .....490 | 5-4-dr. De Luxe Sedan (2 win.) 630
4 Spt. Coupe.. 500 | 5 Town Sedan... 630
4 De L. Coupe.. 525 | 5 Con Sedan.....640
4 Victoria.....580

FRANKLIN—Transcontinent. 6-cyl. 125 WB.

5 Sedan.....2,295 | Vic Brougham..2,395
Coupe .....2,345 | Pursuit 2,495
Con. Coupe....2,395 | Town Sedan....2,425

FRANKLIN—Transcontinent, 6-cyl. 132 WB.

Roadster (6 wire wheels) .....2,345 | 7 Sedan.....2,475
Special Sedan..2,395 | Sport Salon....2,595
Spec. Limousine.2,725

FRANKLIN—De Luxe. 6-cyl. 152 W. B.

Coupe .....2645 | Speedster (5 wire wheels) 2,815
5 Sedan.....2,695 | 5 Pirate Tour...2,695 | 7 Sedan.....2,895
7 Pirate Phaet.2,695 | Con. Speedster...2,995
Club Sedan....2,745 | 7 Limousine....2,995
Con. Coupe....2,765 | Town Berline (6 Vic. Brougham.2,795 | wire wheels)..4,195

GRAHAM—Prosperity. 6 cyl. 113 W. B.

Coupe .....785 | Sedan 825
Town Sedan .....795 | Coupe (R.S.) ..825

GRAHAM—Standard. 6 cyl. 115 W. B.

Coupe .....945 | Coupe (R.S.) 985
Roadster (R.S.)..945 | Sedan 995

GRAHAM—Special. 6 cyl. 115 W. B.

Coupe .....985 | Coupe (R.S.) ...1025
Roadster (R.S.)..985 | Sedan 1035
Town Sedan ...1015

GRAHAM—Special. 8 cyl. 120 W. B.

Coupe .....1185 | Sport Sedan 1235
Coupe (R.S.) ...1225 | Sedan 1285

Graham—Custom. 8 cyl. 134 W. B.

Sedan .....1895 | Limousine 2145
7 Sedan 1945

HUDSON—8-cyl. 119 W. B.

2 Coupe .....875 | 5 Town Sedan....945
5 Coach .....895 | 5 Stand. Sedan...995
4 Coupe (RS) ..925 | Sport Roadster...995

HUDSON—8-cyl. 126 W. B.

5 Tour. Sedan..1,145 | 5 DeL. Brougham.1,375
5 Brougham ...1,195 | 5 Club Sedan ..1,445
7 Fam. Sedan..1,195

HUPMOBILE—Century 6. 114 W. B.

5 Sedan .....995 | Cabriolet (RS)...1,050
Com. Coupe.....995 | 5 Phaeton 1,050
2 Coupe (R. S.)..995 | Roadster (RS)..1,075

HUPMOBILE—Century 8. 118 W. B.

5 Sedan .....1,295 | 2 Cabriolet (RS) .1,350
2 Coupe (RS)...1,295 | 5 Phaeton 1,350
2 Com. Coupe...1,295 | 2 Roadster (RS).1,375

HUPMOBILE—Series C. 121 W. B.

5 Sedan .....1,595 | Victoria Coupe..1,615
2 Coupe (RS)..1,595 | 7 Spt. Phaeton..1,685
2 Cabriolet (RS).1,595 | 5 Town Sedan...1,705
4 Coupe 1,615

HUPMOBILE—Series H. 125 W. B.

5 Sedan .....1,895 | Victoria Coupe..1,915
2 Coupe (RS)...1,895 | 7 Spt. Phaeton..2,005
2 Cabriolet (RS).1,895 | 5 Town Sedan...2,005
4 Coupe 1,915

HUPMOBILE—Series U. 137 W. B.

7 Sedan .....2,295 | Sedan Limou....2,445
Victoria Coupe.2,295

LA SALLE—8-cyl. 134 W. B.

Fisher Custom

2 Coupe .....2,195 | 5 Town Sedan...2,345
5 Sedan .....2,295 | 7 Sedan 2,475
2 Con. Coupe ..2,295 | 7 Imp. Sedan ...2,595
5 Coupe 2,295

LA SALLE—8-cyl. 134 W. B.

Fleetwood Custom

2 Roadster ....2,245 | 5 Sedanette 3,245
7 Touring .....2,345 | 5 A. W. Phaeton.3,245
5 Sedan Cabrio.3,345

LINCOLN—8-cyl. 145 W. B.

Standard Models

4 Sport Phaeton .....4,400 | Town Sedan (3 windows)...4,600
7 Sport Touring.4,400 | 4 Sport Phaeton T.C.) 4,600
5 Coupe .....4,600 | 4 Con. Roadster.4,700
5 Town Sedan (2 windows)..4,600 | 5 Sedan 4,500
7 Sedan 4,900
7 Limousine 5,100

LINCOLN—8 cyl. 145 W. B.

Custom Models

2 Coupe (Judkins).....5,200 | Con. Sedan (Dietrich).....6,800
4 Berline (2 win.) (Judkins).....5,800 | A. W. Cabriolet N.C.(LeBaron).7,100
Berline (3 win.) (Judkins).....5,300 | A. W. Brougham (Brunn) 7,200
Limousine (Willoughby)..6,100 | A. W. Cabriolet S.C. (LeBaron).7,300
Con. Phaeton (Derham).....6,200 | A. W. Cabriolet (Brunn).....7,400
Con. Coupe (Dietrich).....6,400 | Panel Brougham (Willoughby)...7,400

MARMON—70. 112¾ W. B.

2 Stand. Coupe...950 | 4 Vic. Coupe 995
5 Sedan .....995 | 2 Con. Coupe ...1,045

MARMON—88. 130-136 W. B.

5 Sedan .....1,895 | 2 Con. Coupe ...2,395
5 Sedan .....2,220 | 7 Sedan 2,495
2 Stand. Coupe..2,275 | 7 Limousine 2,595
5 Club Sedan ...2,345

MARMON—16-cyl. 145 W. B.

5 Sedan .....4,775 | 2 Con. Coupe ...4,875
2 Coupe .....4,795 | 7 Sedan 4,975
5 Cl. Cp. Sedan.4,845 | 5 Con. Sedan ...4,995
5 Victoria .....4,845 | 7 Limousine 5,075

NASH 960— 6-cyl. 114½ W. B.

Coupe .....795 | 4-dr. Sedan 845
2-dr. Sedan .....795 | Touring 895
Coupe (RS) 825

(Recent price changes in bold face)

NASH—970. 8-cyl. 116¼ W. B.

Coupe .....945 | 4-dr. Sedan 995
4-dr. Spec. Sedan.955 | 4 Con. Sedan....1,075
Coupe (RS) 975

NASH—980. 8-cyl. 121 W. B.

Coupe .....1,245 | 4 Con. Sedan....1,325
Coupe (RS)....1,285 | 4-dr. Town Sed..1,375
4-dr. Sedan 1,295

NASH—990. 8-cyl. 133 W. B.

4-dr. Sedan (124 W. B.).....1,565 | Victoria 1,765
7 Touring .....1,595 | 5 Sedan 1825
Cabriolet .....1,695 | 7 Sedan 1,925
Coupe (RS).....1,745 | 7 Limousine 2,025

****OAKLAND—8-cyl. 117 W. B.**

Coupe .....1,004 | Con. Coupe 1,104
2-dr. Sedan.....1,004 | 4-dr. Sedan 1,104
Sport Coupe....1,084 | Custom Sedan...1,164

OLDSMOBILE—6-cyl. 113½ W. B.

Standard Models

2-dr. Sedan .....845 | 4-dr. Sedan 925
Business Coupe...845 | Con. Roadster....935
Sport Coupe ....895 | Patrician Sedan..960

OLDSMOBILE—6-cyl. 113½ W. B.

De Luxe Models

2-dr. Sedan.....910 | 4-dr. Sedan 930
Business Coupe...910 | Con. Roadster...1,000
Sport Coupe ....960 | Patrician Sedan..1,025

PACKARD—8-cyl. 129½ W. B.

5 Sedan 2,485

PACKARD—8 cyl. 136½ W. B.

5 Phaeton .....2,650 | 5 Coupe 2,795
2-4 Coupe Roadster ....2,650 | 7 Sedan 2,885
2 Coupe .....2,675 | 5 Spt. Phaeton...2,950
5 Sedan .....2,685 | 7 Sedan Limousine 2,985
7 Touring .....2,775 | 5 Conv. Victoria..3,395
5 Club Sedan ..2,775 | 5 Conv. sedan....3,445

PACKARD— 8-cyl. 1121¼ W. B.

5 Phaeton .....3,690 | 5 Coupe 3,850
2 Coupe .....3,725 | 5 Club Sedan ...3,890
2-4 Coupe Roadster .....3,750 | 5 Coupe 3,890
7 Touring .....3,795 | 5 Spts Phaeton..3,990
5 Sedan .....3,845 | 5 Conv. Victoria.4,495
5 Conv. sedan...4,550

PACKARD— 8-cyl. 1171¼ W. B.

7 Sedan .....4,150 | 7 Sedan Lim.....4,285

PEERLESS—Standard 8. 118 W. B.

5 Sedan .....1,495 | 5 Brougham 1,545
2 Coupe (RS)...1,495 | 2 Cabriolet R.S..1,595
5 Club Sedan ..1,545

PEERLESS—Master 8. 125 W. B.

5 Sedan .....1,995 | 5 Brougham 2,045
2 Coupe (RS) ..1,995 | 2 Cabriolet 2,095
5 Club Sedan...2,045

PEERLESS—8-cyl. 125 W. B.

De Luxe Master

5 Sedan .....2,320 | Brougham 2,370
2 Coupe .....2,320 | Cabriolet 2,430
Club Sedan 2,370

PEERLESS—Custom 8. 138 W. B.

2 Coupe (RS)...2,795 | 5 Brougham 2,845
5 Sedan .....2,795 | 7 Sedan 2,945
5 Club Sedan...2,845 | 7 Limousine 3,145

PIERCE-ARROW—43. 8-cyl. 134 W. B.

2-4 Coupe (RS) .2,585 | 2-4 Sport Roadster
5 Sport Tourer.2,895 | (RS) 2,895

PIERCE-ARROW—43. 8-cyl. 137 W. B.

5 Sedan .....2,685 | 7 En. Dr. Limou..3,145
5 Club Sedan...2,835 | 5 Con. Sedan....3,650
7 Sedan 2,995

PIERCE-ARROW—42. 8-cyl. 142 W. B.

5 Tourer .....3,450 | 4 Spt. Phaeton..3,750
2-4 Spt. Roadster (RS) .....3,450 | 5 Club Sedan...3,745
2-4 Con. Coupe (RS) .....3,650 | 7 Sedan 3,825
5 Sedan .....3,695 | 5 Club Berline..3,945
7 En. Dr. Limou.3,995

PIERCE-ARROW—41. 8 cyl. 147 W. B.

7 Spt. Tourer...4275 | 7 Sedan 4785
2-4 Con. Coupe (R.S.) .....4275 | 7 En. Dr. Limou..4985

PIERCE-ARROW—41. 8 cyl. 147 W. B.

Le Baron Custom Group

2-4 Coupe (RS).5100 | Formal Town
5 Coupe Victoria.5100 | Brougham 6250
5 Con. Sedan ..5200 | Formal Town
5 Spt. Sedan ..5375 | Car. 6250
7 En. Dr. Lim..5975 | Formal Town Landaulet 6400

PLYMOUTH—4-cyl. 170 O. A.

2 Bus. Roadster...635 | 5 Phaeton 595
2 Bus. Coupe.....565 | 2 Coupe (RS) 610
5 2-dr Sedan ....575 | 4-dr Sedan 635
4 Roadster (R.S.).595 | 4 Con Coupe 645

****PONTIAC—6 cyl. 112 W. B.**

2-dr Sedan .....779 | Con. Coupe 849
Coupe .....779 | 4-dr. Sedan 849
Sport Coupe ....819 | Custom Sedan ...889

REO—6-21. 6-cyl. 121 W. B.

5 Sedan 1295

REO—8-21. 8-cyl. 121 W. B.

5 Sedan 1,395

REO ROYALE—8 cyl. 131 W. B.

Sedan Victoria..2,145 | Coupe 2,145

REO ROYALE—8 cyl. 135 W. B.

Sedan .....2,745 | Coupe 2,745
Con. Coupe 2995

STUDEBAKER—Six. 114 W. B.

Roadster .....895 | Tourer 895
2 Bus. Coupe.....845 | Regal Tourer.....970
5 4-dr. Sedan.....895 | 5 Regal Sedan
4 Coupe (RS).....895 | (6 wire wheels) .970

STUDEBAKER—Commander 8-70. 124 W. B.

4 Coupe .....1,585 | 5 Brougham
5 Sedan .....1,585 | (Cloth) 1685
4 Victoria .....1,585 | 5 Brougham
5 Regal Sedan...1685 | (Mohair) 1685

STUDEBAKER—Dictator. 8-cyl. 114 W. B.

2 Coupe .....1,095 | 5 Sedan 1,150
4 Coupe .....1,150 | 5 Regal Sedan...1225

STUDEBAKER—President 8-80. 130 W. B.

5 Sedan .....1,850 | 5 State Sedan
2 Coupe .....1,850 | (Mohair) 1950
4 State Roadster.1900 | 5 State Sedan
4 State Coupe....1950 | (Cloth) 1960

STUDEBAKER—President 8-90. 136 W. B.

7 Tourer .....1,850 | State Victoria....2250
7-State Tourer...2050 | 7 State Sedan
7 Sedan .....2,150 | (Mohair) 2250
5 Brougham | 7 State sedan
(Mohair) ....2,295 | (Cloth) 2250
5 Brougham | 7-Limousine 2550
(Cloth) 2,295

STUTZ—LA 6-cyl. 127½ W. B.

5 Coupe .....1,995 | Cab. Coupe.....2,445
5 Sedan .....2,245 | 2 Speedster 2,585
2 Coupe .....2,245 | 4 Speedster 2,585
Club Sedan ....2,345 | 4 Speedster (TC) .2,785

STUTZ—MA. 8-cyl. 134½ W. B.

5 Coupe .....2,690 | 2 Speedster 3,495
2 Coupe .....2,995 | 4 Speedster 3,495
5 Sedan .....3,195 | Tor. Speedster .3,595
Club Sedan.....3,295 | 4 Speedster (TC) 3,795
Cab. Coupe 3,345

STUTZ—MB. 8 cyl. Custom. 145 W. B.

7 Speedster ....3,595 | 7 Limousine 3,995
5 Sedan .....3,695 | Cab. Coupe 3,995
7 Sedan .....3,895 | 5 Con. Sedan ...4,395

STUTZ—MB. 8-cyl. Salon. 145 W. B.

5 Sedan (Le Baron)...4,795 | 7 Sedan Limousine (Le Baron)....5,195
6 Brougham (Le Baron)...4,995 | 5 Trans. Cabriolet (Le Baron)....5,610
6 Sedan (Le Baron)...4,995 | 7 Trans. Town Car (Le Baron)....5,700
6 Bro. Limousine (Le Baron)...5,195 | 7 Trans. Town Car (Fleetwood)....7,495
6 Sed Limousine (Le Baron)...5,195

STUTZ—MA. 8 cyl. 134½ W. B. Chateau Series Weymann.

4 Longchamps ..4,345 | 5 Versailles 4,345

STUTZ—MB. 8-cyl. 145 W. B. Chateau Series Weymann.

5 Chaumont ...4,745 | 5 Monte Carlo...4,895

WILLYS—6-97. 6-cyl. 110 W. B.

2 Roadster .....495 | 5 Club Sedan 625
5 Touring .....545 | 5 Sedan 675
2 Coupe .....565 | 4 De L. Spt.
5 2-dr. Coach.. 595 | Roadster 675
4 Coupe .....595 | De L. Touring....725

WILLYS—6-98-D. 6-cyl. 113 W. B.

5 Standard Sedan.795 | 5 Sedan (De L)...850
4 Vic. Coupe(DeL).850

WILLYS—8-80-D. 8-cyl. 121 W. B.

5 Sedan .....995 | 4 Victoria Coupe
5 Sedan (De L) .1,095 | (De Luxe) 1,095
Custom Sedan ..1,295

WILLYS KNIGHT—6-95. 113 W. B.

Coach .....845 | 5 Sedan 875
2 Coupe .....845 | Victoria Coupe
5 Win. Coach.....875 | (De L.).....895

WILLYS-KNIGHT—66-D. 6-cyl. 121 W. B.

5 Sedan .....1,095 | 4 Victoria Coupe
5 Sedan (DeL) ..1,195 | (De Luxe) 1,195
Custom Sedan...1,395

*Over all length of chassis instead of wheel base.

**As delivered prices only are quoted, they vary in different sections of the country and the Oakland-Pontiac prices given above are for New York city only.

WEEKLY BUSINESS INDICATORS

SURVEY OF CURRENT BUSINESS

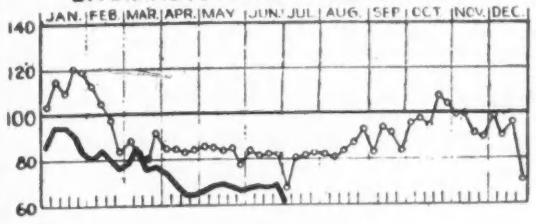
UNITED STATES DEPARTMENT OF COMMERCE

DATA PLOTTED, WHERE AVAILABLE FOR WEEK ENDING JULY 11, 1931

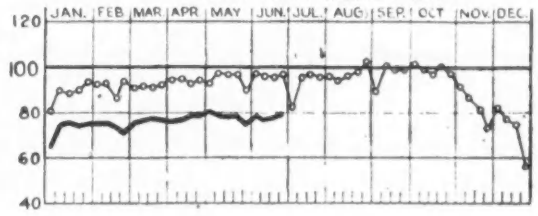
WEEKLY AVERAGE, 1923-1925, INCLUSIVE=100

LEGEND
1930
1931

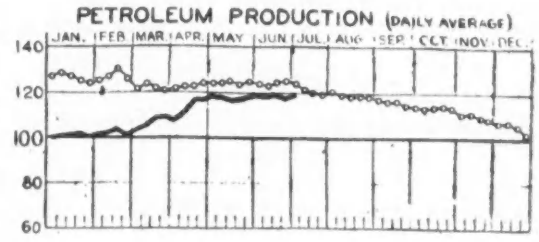
BITUMINOUS COAL PRODUCTION



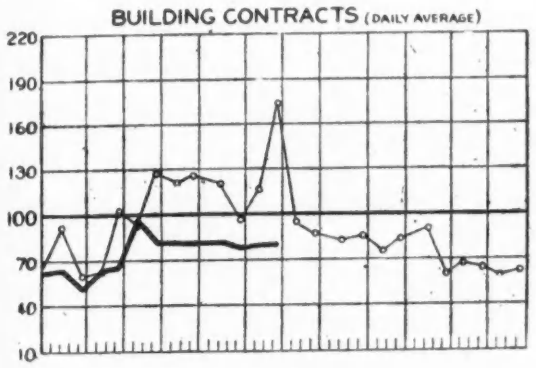
FREIGHT CAR LOADINGS



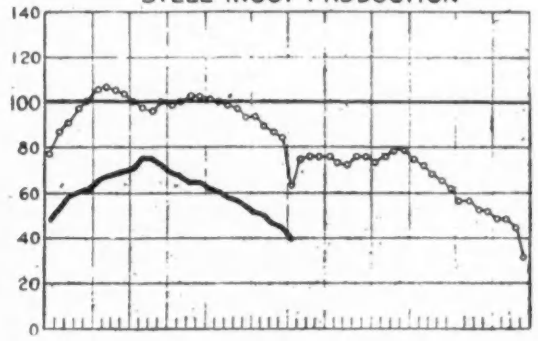
PETROLEUM PRODUCTION (DAILY AVERAGE)



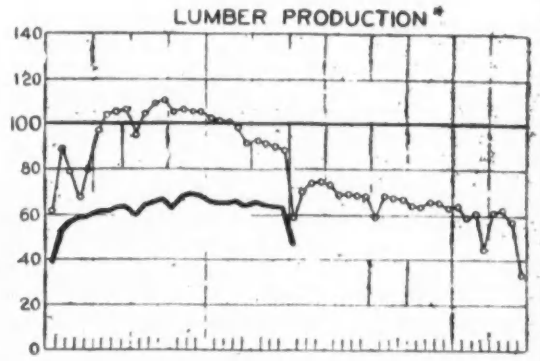
BUILDING CONTRACTS (DAILY AVERAGE)



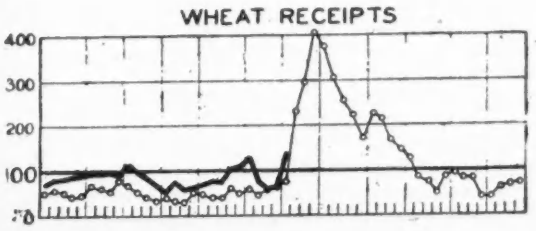
STEEL INGOT PRODUCTION



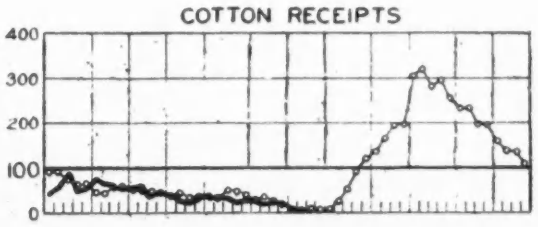
LUMBER PRODUCTION*



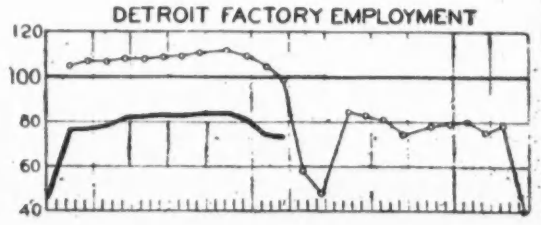
WHEAT RECEIPTS



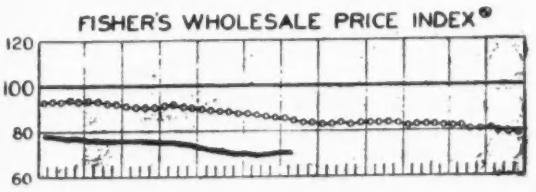
COTTON RECEIPTS



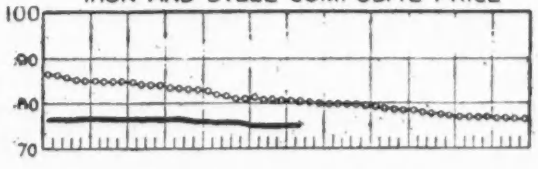
DETROIT FACTORY EMPLOYMENT



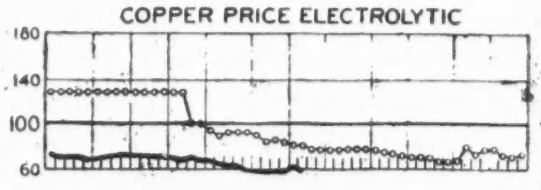
FISHER'S WHOLESALE PRICE INDEX*



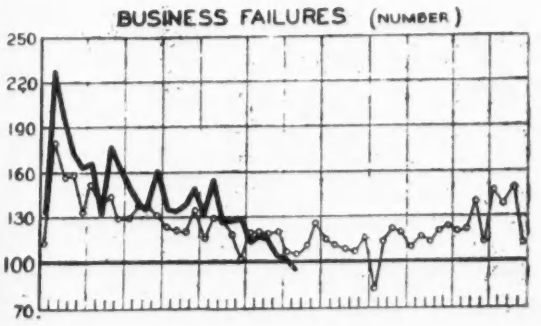
IRON AND STEEL COMPOSITE PRICE



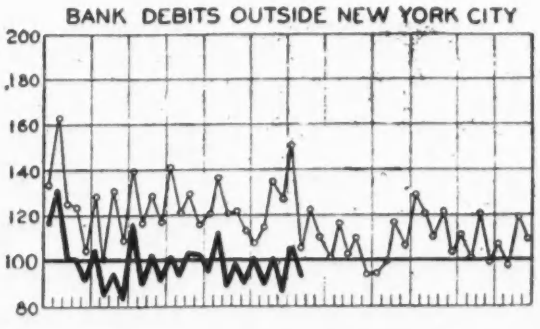
COPPER PRICE ELECTROLYTIC



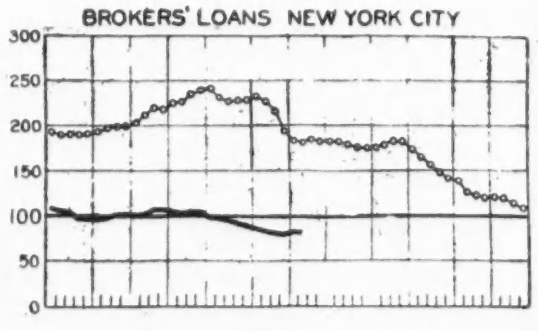
BUSINESS FAILURES (NUMBER)



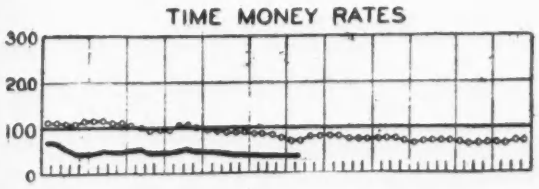
BANK DEBITS OUTSIDE NEW YORK CITY



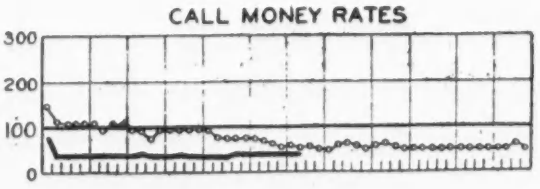
BROKERS' LOANS NEW YORK CITY



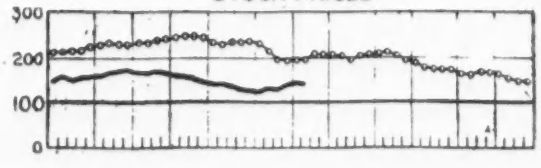
TIME MONEY RATES



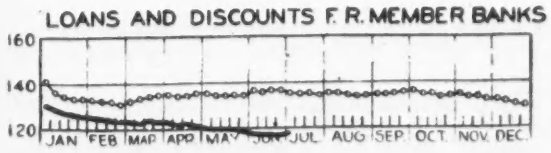
CALL MONEY RATES



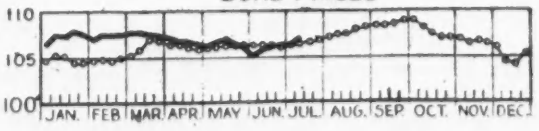
STOCK PRICES



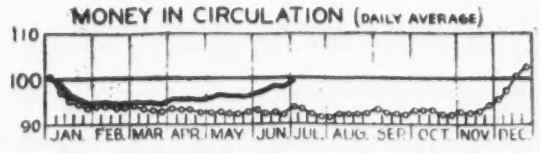
LOANS AND DISCOUNTS F. R. MEMBER BANKS



BOND PRICES



MONEY IN CIRCULATION (DAILY AVERAGE)



* RELATION TO WEEKLY AVERAGES 1928-1930 PER WEEK SHOWN. ● RELATIVE TO 1926=100

TWO STUDEBAKER MEN HONORED ON PROMOTION

Union City, N. J., July 15.—Studebaker automobile dealers of Hudson county gave a double farewell party to Herbert Forsyth of East Orange, and Philip O'Neill of Summit, at the Hermitage, Union City. Forsyth has been transferred from the Jersey City branch of the Ira C. Jones Company, 861 Bergen Ave., to be secretary of the company's main office in Newark. The concern is the state Studebaker distributor. O'Neill, former secretary at Newark, has been transferred to Albany to be new Studebaker distributor for New York State.

OLIVER GEAR & MACHINE PLANS $50,000 FACTORY

Buffalo, N. Y., July 15.—Plans have been filed with the city building commission by the A. F. Oliver Gear and Machine Company, Inc., for the construction of a one-story brick and steel factory building at 1114-1120 Niagara St., to be 73 by 256 feet in size, and cost more than $50,000 with machinery and equipment installations.

Liberty *Has* Made Over $200,000

For Macfadden Publications, Incorporated

Within the 3 months since its acquisition

Here is what has happened:

1. Administration expense has been largely eliminated by Macfadden administrative officers assuming these functions.

2. Overhead expense has been reduced through production of Liberty in the established Macfadden plant.

3. Organization expense has been cut, due to the availability of a clerical structure needing but slight expansion.

4. Circulation expense has been lowered by making Liberty a part of the Macfadden unit-distribution and unit-billing plan.

These savings amount to nearly three-quarters of a million dollars yearly.

No Corners Cut

These are natural economies. No others have been attempted. The Advertising staff, serving Liberty's advertisers, and the Editorial staff, serving Liberty's readers, continue without reduction.

As a matter of fact, the program here calls for steady expansion.

A score of marketing studies are now being conducted to develop useful data for advertisers.

Larger sums are being paid than ever before for stories, articles and illustrations of the type responsible for Liberty's circulation success.

Ploughing the Profits Back into the Property

Liberty's first profits are being used to pursue this improvement program with greater speed.

A weekly radio program over the Columbia Broadcasting System, costing $125,000 was begun July 3rd. This is to tell non-readers why Liberty is the most-asked-for magazine published.

Two steps of paper stock betterment have already been taken. Paper worth $75,000 more a year has been used since May 23rd.

Already, potential profits of the Fall have been pledged toward a new paper contract for 1932. This is the largest paper contract ever placed by a single magazine. It calls for an expenditure of $160,000 more a year.

Vindicating the Faith of $1,521,677 New Advertising Orders

This quick start justifies the convictions of the 58 agencies and 92 advertisers who placed a million-and-a-half-dollars' worth of orders within 60 days of the purchase announcement.

Not that a publisher's profit-and-loss sheet can sell goods to John and Jane Consumer! . . . These orders went to buy 99% guaranteed-to-be-read circulation, greatest coverage in cities over 25,000, next-to-*leading* matter visibility, whole family interest, at one-quarter to one-half less cost than other magazines!

But a publisher who can make money for himself adds no small assurance to one's belief that he can make money for his advertisers.